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NOTICE

The following definitions apply for the transliterated organizational entities included in the text:

chast'	[voinskaya chast'] - Administrative, line, and supply unit (yedinitsa) of the [branches] of troops, which has a number and banner, e.g., a regiment, separate battalion (batal'on, division) and troop organizations equal to them.
ob"yedineniye	[operativnoye ob"yedineniye] - Large-scale unification of various soyedineniye of the branches of troops, which is nonpermanent in composition and is intended to conduct operations in a war.
podrazdeleniye	Troop unit of permanent organization and homogeneous composition in each branch of troops, which unit forms a larger podrazdeleniye or a chast'.
soyedineniye	[soyedineniye voyskovoye] -- Combination (soyedineniye) of several chast' of one or various branches of troops into a permanent organization (division, brigade, or corps), headed by a command and a staff and including chast' and podrazdeleniye of auxiliary troops and services necessary for combat operations.
Source:	Russian-English Dictionary of Operational, Tactical and General Military Terms, 1958

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IN THE CHAST AND SOYEDINENIYE OF THE PVO TROOPS

On an Urgent Subject, By Col D. Gorlenko

Recently, in our soyedineniye, a theoretical conference was held for the officers on the subject "The 24th CPSU Congress on Raising the Role of Communist Indoctrination of the Soviet People and the Army and Navy Personnel." The basic report and co-reports examined the conclusions of the 24th CPSU Congress on the tasks of communist indoctrination at the present stage, on the ways for forming a Marxist-Leninist ideology in the military personnel, and the necessity to strengthen the struggle against bourgeois ideology and the remnants of the past in the consciousness of the people.

The conference participants listened with great interest to statements by officer I. Shebayev on the indoctrination of a new man as one of the main tasks in communist construction and by officer A. Zhdanovich on military, patriotic and international indoctrination of the workers and the Army and Navy personnel.

There was also much that was instructive in the speech by officer I. Vyrovyy who told about indoctrinating high morale and military qualities in the PVO [Air Defense] Troops in the process of military training and standing combat duty. The speakers analyzed the course of carrying out the requirements of the CPSU, the Minister of Defense and the Chief of the Main Political Administration of the Soviet Army and Navy in terms of the political indoctrination of the personnel in the podrazdeleniye. The conference also thoroughly discussed problems of indoctrinating the command personnel.

The command and the political section, as a result of the conference's work, drew the appropriate conclusions, and outlined measures for further improving communist indoctrination of the men.

Our Combat Assistant, by Capt R. Zvyagel'skiy

The readers' conference held in our chast on the magazine Vestnik Protivovozdushnoy Oborony [Air Defense Herald] produced a great deal of interest; it was professional and to the point.

The officers who spoke such as F. Komyshanov, V. Kislov and others, pointed out the useful role of the journal in propagandizing the military theoretical heritage of V. I. Lenin and the decisions of the 24th CPSU Congress. The journal also helps to elaborate the problems of training, political and military indoctrination, as well as the combat and political training of the personnel. It helps in generalizing and disseminating advanced experience of combat training, and in the operating and repair of equipment. It provides help to the commanders, the political workers and engineering-technical personnel in studying the assigned equipment and in carrying out the missions confronting the troops.

The conference participants made a number of specific proposals directed at expanding the subject covered by the journal and improving the quality of the published materials. Thus, Sr Lt D. Brusentsov pointed out that the journal rarely contains articles by the political workers of companies and battalions, as well as Komsomol workers on this level providing materials on the experience of their work. He expressed a desire that the young officers could gain more recommendations from the journal on indoctrinating our troops in the revolutionary and labor traditions of our people, and in the heroic feats of the older generation of PVO Troops.

Officers V. Krivshin, A. Nastenko, N. Fedotov and others recommended that the editors of the journal more frequently publish materials relating to the experience of operating a power system under various conditions, information on the development of Soviet science and technology, on the questions of the dependability of modern complicated automated systems, and on the results of scientific experimental work being carried out in the advanced podrazdeleniye.

In the opinion of the readers, under present conditions a rise in the scientific and theoretical views of the PVO officers is of important significance. In this regard, the speakers expressed the hope that the journal would publish more materials dealing with scientific leadership of all aspects of combat activities in the chast and podrazdeleniye, the scientific organization of military labor, and measures to improve the reliability of the operated equipment, the methods for predicting its efficient operation, as well as on using scientific principles for operating radioelectronic systems and reducing the time for putting them in combat readiness.

The officers who spoke pointed out that the materials published under the title "The Rationalizers Propose" have evoked great interest among the readers. For this reason, it would be a good thing to publish more proposals under the given title, and the introduction of these proposals would make it possible for the PVO Troops to more successfully carry out the combat missions.

At Remote Points, by N. Krivenko

It has become a tradition for the folk song and dance ensemble under the Officers' Club, where officer V. Samusov is the chief, to perform every

new program not only on its own stage, but also for the troops in the remote PVO podrazdeleniye. Recently one of the creative groups of the "Romantik" Ensemble returned from a trip to the Arctic. The amateur artists visited the radar troops, the missile troops and an air garrison at remote points.

The composition "The Combat Path" comprised the basic program of the ensemble; the program was prepared by the artistic director D. Buinskiy. Using music, recitation, song and dance, the program told about the heroic feats of the PVO Troops during the Great Patriotic War, as well as of their difficult but honorable service at present.

The audience particularly like the performances of Pvts G. Lyuboshevskiy, V. Pereverzen and V. Kotov. "For us, the men of a remote podrazdeleniye, the performance by the "Romantik" Ensemble was a real joy as it brought us into contact with art...," wrote Capt I. Fedotov in his comment about the concert. Officer N. Grazichenko, in judging the meaningful program of the amateur collective, emphasized that the ardent verses of the frontline poets, the lyrical songs and dances performed by the ensemble -- all of this was of great significance for the patriotic indoctrination of the troops.

A RELIABLE GUARD OF THE AIR FRONTIERS

The greatness of the feat performed by the personnel of the Soviet Armed Forces in the struggle against the Nazi invaders will never pale. The Soviet people will always have high praise for the military achievements of their armed defenders. "In speaking about the glorious Soviet Army," stated the Report of the CPSU Central Committee to the 24th CPSU Congress, "We cannot help but say a good word about our frontline troops, and about those soldiers and commanders who defended the liberty and independence of our motherland during the years of the Great Patriotic War."

A great tribute of thanks has rightly been given to the glorious Soviet artillery troops, as to the men of the other branches of arms. During the years of difficult military trials, the artillery, which by right is called the "the God of War," in destroying the Nazi hordes with its crushing fire, successfully opened up the path to victory for our troops. It would be hard to mention an area of armed combat which developed over the vast expanses of the land where the artillery troops, in manifesting mass heroism, courage and high combat skills, did not make their own weighty contribution to the cause of defeating the enemy.

More than a quarter of a century has passed since the last victorious artillery salvo died out. Over this time a great deal has changed, and the weapons for defending the motherland have become totally different. At present, the military might of the Soviet Armed Forces is based upon missiles which possess great range, enormous striking power, and exceptionally high accuracy in hitting the enemy, no matter where he might be. The missile troops have mastered the complicated equipment entrusted to them, they are infinitely loyal to the party, the government and their people, and they excel in exceptionally high morale, political and psychological qualities, as well as strong ideological tempering. They are always ready, under any circumstances, and at any price, to defeat an agressor and to defend the victories of the Great October Revolution. The mighty missiles are in dependable hands!

Having inherited the military traditions of the glorious antiaircraft troops, the missilemen of the PVO Troops are successfully fulfilling their sacred military duty.

19 November is the Missile Troops and Artillery Day. The personnel of the PVO Missile Troops, like the personnel of all the Soviet Armed Forces, celebrate this holiday which has already become a traditional one under a situation of ever-growing political and professional activeness brought about by the decisions of the historic 24th CPSU Congress. In 1971 which had as its motto "The Year of the 24th CPSU Congress -- A Year of Excellent Training and Service," each officer, sergeant and soldier made a maximum effort to strengthen and multiply the successes achieved during the year of the Lenin jubilee and during the period of preparations for the great communist forum. Over this entire remarkable training year, in all the podrazdeleniye and chast, there was a constant struggle to further raise combat readiness and capability, combat improvement and morale, political and psychological training, ideological tempering, as well as to strengthe organization and discipline. Under these conditions, the personnel constantly sought out and made maximum use of all the reserves and all existing possibilities. With exceptionally great enthusiasm, energy and inspiration, they carried out the combat missions confronting them after the promulgation of the Decree of the CPSU Central Committee "On Further Improving the Organization of the Socialist Competition."

The PVO Missile Troops are celebrating their holiday with significant successes in military and political training, in strengthening military discipline and in raising combat capability and readiness. Suffice it to say that virtually all the officers, sergeants and soldiers have completely fulfilled the assumed socialist obligations. At present, in the PVO Missile Troops, approximately one out of two men is an outstanding man and a specialist second-class. The ranks of the masters of military skills, the military personnel who have been given high governmental decorations and the chast and podrazdeleniye which have been awarded the rotating Red Banner have multiplied.

Such specialists and missile collectives are capable of opposing the treachery and cleverness of an aggressor if he dares attack our motherland. They have the great ability to deal him crushing blows. They excel in superior tactical and firing skills, and the readiness to wage active and decisive actions under any conditions of a complicated military situation. With good reason the missile troops vigilantly stand duty, as a rule the field training firing is performined excellently on the firing ranges, and they demonstrate high professional skills, mobility, psychological strength and physical endurance during the training exercises.

The excellent execution of field firing and the hitting of a target with the first missile serve as proof of the increased firing skills. And such results are an index of the high missile firing abilities of each specialist, of sound skills in the efficient preparation of the equipment for combat, and of a profound understanding of the essence of the firing rules. This can be clearly seen from the example of the podrazdeleniye in the chast commanded by Col K. Vakulenko. Here a predominant majority of the men are outstanding men in training, virtually all are class specialists, more than one-half of them are in the first and second class, and one out of every five officers is a master of military skills. For this reason,

no complicated combat situation is too much for such highly trained missile troops. Under any situation they act exceptionally precisely, with teamwork, initiative and conviction. They work just as precisely and energetically in protective gear as well as without it, under night conditions as if during the day, and make crushing strikes against targets which operate at low altitudes, using interference and maneuvers. And it is quite natural that the firing mastery of the missile troops rises constantly, year by year. It is no accident that they always receive excellent evaluations for the execution of field firings.

A characteristic feature of the personnel in the antiaircraft missile troops is initiative and creativity in work, and tenacity in achieving the set goals. Let us refer to the example of the podrazdeleniye commanded by Lt Col M. Yeremenko. Here, the missile troops respond to the new more complicated tasks of combat training which are dictated by the present situation by using the most effective forms and methods for organizing the training process, as well as by utilizing effective pedagogical principles and more advanced material training facilities. In constantly analyzing the activities of the personnel, the acquired experience and the changes in the means of attack, the commander and the other officers, in relying on the help of the communists, find and carry out new reserves and ways to achieve the demands posed by practice. The more responsible the mission, the harder the work to strengthen organization and order and to improve military discipline. Precisely all of this provides the podrazdeleniye with a possibility to move forward confidently to new goals in combat improvement, to firmly keep the title of excellent podrazdeleniye, and to always be up on the level of modern requirements.

Our nation is celebrating Missile Troops and Arillery Day during the significant days of the year of the 24th CPSU Congress. Inspired by the decisions of this historic communist forum, the Soviet people are successfully completing the first year of the Ninth Five-Year Plan. Inspired by the great successes in creative labor, they are full of conviction to fulfill the grandiose goals of our party ahead of time.

Like all the PVO Troops, the glorious missile troops are in pace with the Soviet people. The remarkable successes achieved this year by them in combat improvement, in raising combat readiness and capability, as well as high political and professional activeness, inspire them to new military feats, that is, to carry out the next more complicated missions confronting the antiaircraft missile troops and the PVO Troops as a whole.

The chief tasks of all the missile troops, without exception, is to raise combat readiness of each podrazdeleniye and chast to a new higher level. This is dictated by the complexity of the contemporary international situation and by the feverish preparation of new and existing means of air attack by the imperialists for unleashing aggression against the nations of the socialist community, and above all, against the Soviet Union. "In hiding behind the old warhorse of the 'communist threat'," said the USSR Minister of Defense Mar SU A. A. Grechko, at the 24th CPSU Congress, "the ruling circles of the United States are fanning militaristic passions in every possible way,

and are searching for a way out of the crises of political and military doctrines of imperialism by strengthening war preparations against the Soviet Union and the forces of peace and progress."

Under these conditions, it is essential to keep a watchful eye out over the intrigues of the imperialists, to reduce the time required for bringing the troops into a state of combat readiness as much as possible, to continuously improve the operation of equipment and weapons, and to continuously better the leadership of the podrazdeleniye and chast. Victory over a modern air enemy is inconceivable without a continuous rise in the ideological strengthening and political maturity of the troops as well as psychological training, organization, order and discipline. The efforts of the commanders, the political workers, the staff officers, the engineers and technicians, the party and Komsomol organizations as well as all the personnel of the antiaircraft missile troops are directed first of all at solving these tasks of primary importance.

In order to gain the upper hand over the enemy, evergrowing tactical skills of the personnel are required, as well as the ability to act according to all the rules of modern advanced Soviet military science, and for any unexpected stratagem by the enemy, to find and utilize an effective method of actions for one's own forces and means.

As can be seen from statements in the foreign press, the imperialists and above all the United States, are working with redoubled efforts to improve the means of air attack, they are increasing their number excessively, and are raising their fire power to a maximum. New forms and methods of their combat application are also being constantly sought out. Here great significance is paid to the use of sudden, clever and deceitful actions in combat as well as all sorts of interference. Under such conditions, particular morale and combat qualities are required from the personnel, and primarily from the commanders as well as from the staff officers. In this regard, the task of raising the effectiveness of military and political training moves to the forefront. It is essential to see to it that this training maximally develop in all the missile troops the abilities and firm skills to make a scientific evaluation and forecast of the situation and to efficiently make completely sound decisions for conducting combat and to see that these decisions are carried out without fail under any situation, no matter how complicated it might be. At present increased demands are placed upon the troops in the area of making maximum use of the combat capabilities of all the means at their disposal. The work of improving the skills of coordinated actions, combat command and providing a high survival rate for the troops has been raised to a new level.

For successfully carrying out these tasks, the personnel is waging a greater struggle to raise the quality of execution of training measures, to saturate them with elements of innovation, and to create during them a situation which would force all the trainees, without exception, to work at full strength, with initiative, and with tactical skill as in real

combat. There is the more acute question of improving the methodological training for leaders of exercises, training sessions and studies, as well as for improving the use of the material training facilities.

Firing training is an index for the combat maturity of the missile troops. Combined with high tactical skills, it determines the degree to which the personnel is ready to carry out modern complex combat missions. This is why the need has arisen to further improve the missile firing training of the personnel, their ability to skilfully and creatively use the modern methods of firing in combat, to raise teamwork, speed and accuracy of the work in preparing for firing and in firing itself. A subject of particular concern is to strengthen the work in the area of training truly highclass specialists, particularly in the crews of the command posts, to reduce the norms of combat work, to raise the level of the effectiveness of firing, and to introduce into practice the most effective ways for preparing the equipment for combat, to introduce advanced methods for activating the equipment, for monitoring its functioning, and for detecting and tracking the targets.

To a decisive degree the combat capability of the missile podrazdeleniye depends upon the readiness of the equipment to be put immediately into combat use, as well as upon the level of its reliability of service. In this regard, the efforts of the personnel are focused on further improving the technical level and methods of operating the equipment, as well as at the effective and complete carrying out of preventive measures on the equipment. Here one should not overlook the work of improving the quality of repairs done at the site of the permanent positions, to protect the equipment, and to create conditions for its effective operation and for protection against the effect of enemy weapons of mass destruction.

Modern high-speed and intense combat against an air enemy requires exceptionally high ideological, morale and political tempering as well as psychological strength from all the specialists of the antiaircraft missile troops. In order that these particular qualities of Soviet military personnel be as strong as possible and always meet the modern increased requirements, the commanders, political workers and party organizations of the missile podrazdeleniye by using all measures should bring about a rise in the effectiveness of the diverse indoctrination conducted among the personnel, as well as all the diverse forms of political and ideological and theoretical training. Particular emphasis must be put on having the troops make a regular and thorough study of Marxist-Leninist theory as well as the materials and decisions of the 24th CPSU Congress. Precisely on this basis the personnel develops a profound understanding of the nature of modern armed combat and the factors which play the decisive role in it.

The commanders and political bodies also conduct diverse work on significantly strengthening troop indoctrination. Particular attention is given to developing among the personnel a high sense of responsibility for complete execution of military duty, and the unfailing observance of the requirements of the military oath, the regulations and documents regulating combat activities.

Success in the military work of the personnel depends greatly upon the state of military discipline and the service of the troops. The commanders, political bodies and party organizations are seeking out new ways which provide a further strengthening of organization and order in the troops. They are waging an effective struggle against the slightest manifestations of hackwork and violations in organizing training, the execution of plans for combat and political training and in standing corbat duty.

The missile troops are confronted with great and responsible tasks during the new training year. The solution to these tasks requires that the commanders, political bodies, party and Komsomol organizations significantly strengthen their organizational and indoctrinational work. There can be no doubt that each officer, no matter what position he holds, will carry out all the demands posed by life in a party manner, efficiently and tenaciously, and that he will confidently lead the personnel to new military feats in the name of the great cause of effectively defending the air frontiers of our beloved Soviet fatherland.

THE STRENGTH OF A SOLDIER IS IN IDEOLOGICAL TRAINING

By Col M. Bol'shakov,
Candidate of Historical Sciences

The life of the Soviet people and their Armed Forces at present is occurring under the profound effect of decisions of the 24th CPSU Congress. This congress brought about a new upsurge of political activeness and labor enthusiasm of the workers and the personnel of the Army and Navy. The program outlined by the congress for the further development of our society is being carried out confidently.

Every Soviet person, no matter where he works, can and should make his own contribution to carrying out the tasks raised by the congress. But the great cause of building communism cannot make headway without the all-round development of man himself, without a high level of culture, education, social awareness and internal maturity. For this reason, the 24th Party Congress gave so much attention to a complete examination of the questions of developing the spiritual life of society, and the formation of a new man, and considering contemporary conditions, formulated the urgent tasks in the area of ideological indoctrination for the party organizations.

The congress documents give even greater purposefulness to the ideological activities of all the communists. They are the ideological and theoretical basis for practical work over a long term period. They show the objective necessity for strengthening ideological indoctrination under the conditions of a developed socialist society. The Congress Resolution on the Report of the CPSU Central Committee points to the necessity of making the propagandizing of communist ideals and the specific tasks of our construction more active and effective.

The increase in the role and significance of ideological work under present conditions has been caused by a number of important circumstances. In the first place, Soviet society is at a stage of its development, when the level of awareness, scientific knowledge and the level of labor and behavior have a more and more active effect upon the development of productive forces and on improving social relationships.

Spiritual factors are becoming more and more effective accelerators in solving the increased tasks confronting the Soviet Armed Forces in the area of raising the defense capability of our nation. For this reason, the communist indoctrination of the workers and the Army and Navy personnel, the creative development of Marxist-Leninist theory and a continuous rise in the educational and cultural level of the people comprise very important aspects in the diverse activities of the CPSU.

Secondly, the necessity of further activating ideological indoctrination is caused also by the needs of society's sociopolitical development. The continuous merging of the classes and social groups is achieved not only by socioeconomic factors but also by ideological and moral ones. The unity of our society is strengthened the more successfull the more completely the masses are aware of the unity of fundamental interests among all workers, society and the individual, and actually participate in solving economic and social questions as well as cultural and educational problems.

Thirdly, the fundamental significance of ideological work becomes apparent in the constant and uncompromising struggle against negative phenomena, and against everything which we call the remnants of the past in the awareness and conduct of people. The various manifestations of petty bourgeois life are extremely durable in their nature, and they impede, primarily, the development of awareness among Soviet people, including military personnel, and come into more and more conflict with the socialist way of life and the laws of military service. In speaking about the struggle against everything which runs counter to communist morality and which is its antipode, the Secretary General of the CPSU Central Committe, Comrade L. I. Brezhnev, at the 24th CPSU Congress, emphasized that this struggle is a concern which requires constant attention from the party and all the aware advanced forces of our society.

Fourthly, the necessity for strengthening ideological work is caused by the exacerbation of the ideological struggle at the present stage between the socialist world and the capitalist world.

The imperialists consider the personnel of the Soviet Armed Forces as one of the important objects of their ideological subversion. They endeavor to create among Soviet soldiers false notions of the policy of imperialism, the causes of modern wars, and the character and purpose of the armies of the socialist states. They fabricate absurdities about a nonexistent "communist threat" to the fabled "free world" and much else.

For this reason, our workers from the propaganda and mass agitation front should, as was pointed out in the Report of the Central Committee to the 24th Party Congress give a prompt, decisive and effective rebuff to all ideological attacks, and bring the truth to hundreds of millions of people concerning a socialist society, the Soviet way of life, and the construction of communism in our nation. Furthermore, it is essential to skilfully and decisively unmask the true essence of the Maoist ideology and policy, as well as its anti-Marxist and anti-Leninist bent.

Thus, both the internal conditions as well as the international situation dictate the necessity of the greatest possible strengthening of ideological indoctrination.

The moral and political qualities of Soviet people are formed by the entire socialist way of our life, by the entire course of affairs in society, but above all, by the expedient and constant ideological indoctrination of the party and all its organizations. The effect of objective factors is manifested fully only when combined with diverse ideological activities. This is how the question was posed at the 24th CPSU Congress.

In the Report of the Central Committee to the Congress there was no special section on ideological work. But all its aspects were examined together with the solution to economic and sociopolitical tasks, as well as with the indoctrination of a new man. Having demonstrated the growing significance of ideological work, the congress formulated its most important directions.

In recent years, the front of ideological political work has significantly broadened. It has become a constantly active factor in forming the sociopolitical awareness and in raising the activeness of Soviet people in communist construction and in increasing the combat readiness of the Soviet Armed Forces. During the period between the 23rd and 24th party congresses, particularly during the Lenin jubilee year, the study of Lenin's ideological and theoretical heritage moved to the forefront in this work. Our people endeavored to reason out Lenin's ideas and their significance for practical activities more profoundly.

At present, when the socialist system has more than a 50-year history, its traditions and achievements assume particularly important indoctrinational significance. The celebrating of the 50th anniversary of Soviet power, the centennial birthday of V. I. Lenin and the 25th anniversary of the victory during the Great Patriotic War showed that Soviet people are fully determined to protect and multiply the victories of the the October Revolution, to constantly embody Lenin's ideas, and to be always ready to defend the victories of socialism.

In ideological work, there are basic fundamental problems which have been consistently solved by the party during all the stages of building a new society. These are: the formation of a Marxist-Leninist ideology and communist morality in each member of society, an irreconcilable and offensive struggle against bourgeois and revisionistic ideology, the indoctrination of the workers and the personnel of the Army and Navy in a spirit of Soviet patriotism, proletarian internationalism and friendship among peoples, the development of a communist attitude toward work and public ownership, the development of creative activities and the strengthening of conscious discipline and organization.

The 24th CPSU Congress, having stressed the enormous significance of ideological work for solving the tasks of communist construction, pointed

out that the development of a Marxist-Leninist ideology, high ideological and political qualities as well as the norms of communist morality in the workers remains, in the future, the central task of ideological work.

The party has posed the task of raising all Soviet citizens to a level of a scientific understanding of the complex phenomenon in modern social life, and to arm them with a knowledge of the laws of natural and social development. Communist ideology, as a scientifically based system of general views concerning the world, the laws of its development and man himself, is the basis of the political awareness of Soviet people. Its formation occurs under the effect of numerous factors, among which the acquiring of scientific knowledge is of important significance. For this reason, the party and state have shown constant concern for the further development of public education. At present, in our nation, 79 million persons, or around one-third of the nation's population, are engaged in various types of instruction.

In the new five-year plan they intend to complete the introduction of a universal secondary education. An extensive program has been outlined for improving the work of the higher school as well as for expanding the system of higher education in the nation.

In order that scientific knowledge become an effective instrument for developing a communist ideology, it is essential that this knowledge be saturated with political conviction and ideological purposefulness. These qualities make it possible for a person to proceed, in his activities, from social interests, to have a clear understanding of the prospects of a socialist society, and to freely orient himself in domestic and international affairs, that is, be a politically aware and active builder of communism. But these qualities are formed under the effect of the Marxist-Leninist ideology, and in the process of the profound mastery of Marxism-Leninism, as an integrated and structured system of philosophical, economic and sociopolitical views.

In the Soviet Armed Forces conditions have been created for all the personnel to study revolutionary theory on a planned basis. These conditions make it possible to provide the soldiers, sergeants and officers not with fragmentary notions but rather broad systematic knowledge.

And the main thing which has been done in line with this in the troops over the last two years has been the profound study of Lenin's ideological and theoretical heritage. In the PVO Troops, this year 43 percent of the Marxist-Leninist study groups have been concerned with this problem. In recent years, the number of students in the evening universities of Marxism-Leninism has increased by 50 percent, and by 200 percent on the faculties for party political work.

At present, it is an issue of further improving the ideological tempering of the troops, and to raise their political awareness on the basis of studying Marxism-Leninism. In this regard, an enormous role is played by fulfilling the instructions of the CPSU Central Committee on the necessity

of placing the decisions of the 24th Party Congress at the basis of all ideological work.

Proceeding from this, changes have been made in the political study plans for the personnel during the new training year. These changes derive from the congress decisions and provide a profound study of the questions relating to the theory and practice of the CPSU, and above all, to the urgent questions posed by the 24th Party Congress. Considering the congress decisions, substantial changes and amendments have been introduced in the study plans on the history of the CPSU, philosophy, political economy, scientific communism, the Marxist-Leninist teachings concerning war and the army and others. A new study plan for Marxist-Leninist training has been worked out; it is "Urgent Problems of Marxist-Leninist Theory and CPSU Policy in Light of the Decisions of the 24th Party Congress."

In propagandizing and studying the materials of the congress there can be no seasonal approach or limiting the time which would be allocated for this in the organized forms of political study. This work should be carried out systematically and profoundly, it should encompass all the men without exception, and should in every way contribute to developing high ideological and political qualities in them, to strengthen awareness and discipline, and to further raise the vigilance and combat readiness of the troops.

The 24th CPSU Congress emphasized that the new appearance of Soviet man, his communist morality and ideology are established in a constant and uncompromising struggle against the remnants of the old. There can be no victory for communist morality without a decisive struggle against such antipodes as greed, graft, loafing, slander, drunkenness, and so forth.

Success in this struggle depends upon the correct use of all the means and opportunities for forming communist views and convictions, and upon the ability to provide a high ideological level and effectiveness for each exercise in the system of political studies and all the mass political measures. In all levels of ideological work, it is essential to decisively eradicate dogmatism, education for education's sake, and a divorcing from life which still do occur in certain chast and podrazdeleniye.

V. I. Lenin, in a speech at the Third Komsomol Congress, emphasized that a book knowledge of communism can only give rise to dogmatism and is worthless. Lenin viewed communist ideology as a fusion of scientific knowledge, profound ideological conviction and vital actions in the name of creating communism.

In our practical activities, we cannot help but take into account the instruction of the 24th Party Congress that in ideological work, along with propagandizing the ideas of Marxism-Leninism, a main concern is an irreconcilable aggressive struggle against bourgeois and revisionistic ideology.

Under the conditions when the class enemy is endeavoring by all means to break into the socialist nations, often playing the part of a supporter

of socialist ideas and using communist terminology, it is particularly important to clearly and promptly reveal the essence of the stratagems of bourgeois propaganda and its Maoist yes-men in the ranks of the communist and workers' movement, and in accord with this, to constantly correct all our propaganda, mass agitation and political information work. In other words, the old truth that in propaganda its content is decisive is now assuming even greater urgency.

What questions in the content of propaganda have now assumed primary significance? First of all, we would mention here the complete revealing of those theoretical and practical questions relating to communist and socialist construction which were posed by the 24th Party Congress. Of particular significance is the positing of the main task of the five-year plan, that is, to provide a significant rise in the material and cultural standard of living of the people. The very posing and establishing of this task as the main one during the Ninth Five-Year Plan are the results of the creative application of Marxist-Leninist methodology to analysis of the present stage in the development of our nation.

It is important not to allow an oversimplified interpretation or consumer's approach to solving both the main tasks as well as the other questions of our development. Unfortunately, some propagandists, without bothering to reason out the important problems related to the growth of national prosperity, reduce everything merely to satisfying material needs. It is the duty of the political bodies and the party organizations to work decisively against such practices which give rise to parasitic inclinations and to philistine views about life and labor in a socialist society. It must be firmly remembered that the fulfillment of the party's plans requires hard labor and that the material and spiritual needs of Soviet people are inseparable.

The bringing out of the problems related to the sociopolitical development of Soviet society and the tasks of the party in this area is also of important significance. For the first time these questions were examined at the 24th Party Congress in such a great volume and in such a complex. This is explained by the significance which this sphere objectively assumes under present conditions, and by the attention which the party gives it.

In propaganda, the following problems should move to the forefront: the natural character of the rise and development of Leninism in Russia, socialism as an historic necessity, the Leninist concept of a socialist society achieved in our nation, the heroic history of the revolutionary struggle and socialist construction under the leadership of the communist body, the defense of socialism under present conditions and the tasks of further improving the combat readiness of the Soviet Armed Forces, strengthening military collaboration with the fraternal socialist nations, and so forth.

In ideological work, an important place is held by fulfilling the requirements of the 24th Party Congress concerning the indoctrination of all

workers in a spirit of Soviet patriotism, pride for the socialist motherland and for the great feats of the Soviet people, in a spirit of internationalism, irreconcilability for the manifestations of nationalism, chauvinism and national exclusiveness, and in a spirit of respect for all nations and nationalities. At the congress, particular attention was focused on the questions of military patriotic indoctrination of our people, particularly the youth. In recent years, a good deal has been done in this direction. There has been an improvement in the propagandizing of revolutionary, labor and military traditions of the Soviet people and their Armed Forces. Excursions to the sights of revolutionary, military and labor glory have been widely used, scores of thousands of museums and rooms of military glory have been set up, many thousands of monuments and obelisks have been built, and museums have been organized for Aleksandr Matrosov, Liza Chaykina, "Molodaya Gvardiya," the Lyudinov Underground and the defenders of the Caucasus.

Our glorious Armed Forces are a good school for military and political indoctrination. The patriotism of Soviet soldiers finds it concrete manifestation in the struggle to further raise the combat readiness of the troops as well as in the numerous patriotic undertakings and the competition which developed after the congress.

Indoctrinating a communist attitude toward labor in the Soviet people, as before, holds one of the first places in ideological work. The party constantly takes into account Lenin's instructions that the development of a new man is impossible without creative labor and social activities. "We will work" said V. I. Lenin, "to eradicate the habit of considering labor as only an obligation and just only when it is paid for at a certain rate. We will work to introduce into the consciousness, into the customs and everyday undertakings of the masses the rule: 'All For One and One For All,' and the rule 'each according to his abilities, to each according to his needs,' in order to gradually but constantly introduce communist discipline and communist labor.[1]

This is an enormous task, and it cannot be solved by shouting or sheer energy alone. The CPSU is doing everything to support the mass movements for a communist attitude toward labor, and in every possible way encourages the creative initiative of the Soviet people. This has been clearly expressed in the Decree of the CPSU Central Committee "On Further Improving the Organization of the Socialist Competition."

Military labor is one of the specific forms of socially useful activity in the name of creating communism. Military service, like any socially useful labor, is a sacred obligation and the civil duty of a Soviet man. The 24th Party Congress had high praise for the military labor of the Soviet soldiers. The Report of the CPSU Central Committee to the

1. V. I. Lenin, Poln. Sobr. Soch. (Complete Collected Works), Vol 41, p 108.

Congress stated: "The Soviet Army is a part of our people living the same life with them. Military service in our nation is not only a school of military skill. It is also a good school for ideological and physical development, for discipline and organization."

For this reason, the indoctrinating of an aware attitude toward military labor is the most important task of ideological work in the troops. The carrying out of this task requires that the ideological workers explain the role and place of military labor in the struggle of the Soviet people for the victory of communism, in strengthening the military might of the Soviet Armed Forces. They must show its particular features, its specifics, the moral and aesthetic content, and its effect upon developing the personality of a soldier. These questions must be brought up for discussion by the communist and Komsomol members, better use must be made of moral incentives for military activities, and the experience of indoctrinating a conscientious attitude toward military service in the personnel must be more profoundly analyzed and generalized. For this it is essential to widely propagandize the requirements of the military oath and the military regulations and to equip the soldiers with a profound understanding of the particular features of nuclear war and its fundamental differences from all the wars of the past.

Ideological work in the army is a component part of the activities of the CPSU in the area of the communist indoctrination of the Soviet people. Its goals and tasks are outlined in the Program of the CPSU and in the decisions of the 24th Party Congress. The development of a scientific ideology in the military personnel, the indoctrination of high morale and political qualities, and the mobilization of the personnel to carry out the tasks of military training and to raise combat readiness -- these are the goals of ideological work in the troops.

There is still protracted and constant work ahead to further study and propagandize the materials and decisions of the 24th CPSU Congress in our troops as well as to carry out its demands to strengthen ideological and political indoctrination. We cannot help but see that along with the positive results, here there are also substantial shortcomings. Sometimes a superficial approach is allowed to propagandizing the congress documents, and the essence of the problems is not examined. For example, in the unit where Lt Col Yu. Larishchev is the chief of the political section, certain officers during the political exercises on the subject "The 24th CPSU Congress on the Sociopolitical Development of Soviet Society" gave a lecture which had a poor ideological level. And some of them even made mistaken interpretations of a number of provisions.

It turned out that they had prepared poorly for the exercises, and they themselves did not understand a number of the theoretical and practical questions posed by the congress. For this reason there was no depth and consistency in their speeches.

The requirements of the 24th CPSU Congress to constantly show concern for the cadres of propagandists and to create the best conditions for their effective activities has still not been carried out everywhere. Facts are known when the leading officers do not participate in propagandizing the congress decisions. There are also shortcomings in visual agitation and in the cultural educational institutions.

The political bodies and party organizations, in carrying out the instructions of the CPSU Central Committee, are taking measures to eliminate similar omissions, in order to reinforce the great upsurge in ideological work which has marked the post congress period.

To make accurate and effective use of all the ideological means for developing the creative energy of the personnel, for forming high morale and political qualities in the PVO Troops and for raising the responsibility of each of them for maintaining constant combat readiness of the troops is the most important task deriving from the decisions of the 24th CPSU Congress for all the commanders, political bodies and party organizations.

THE MILITARY COLLABORATION OF THE WARSAW PACT PVO TROOPS IS GROWING STRONGER

By Col M. Kirichenko,
Candidate of Philosophical Sciences

The 24th CPSU Congress pointed out that the Soviet Armed Forces and the armies of the Warsaw Pact nations serve well the interests of socialism and the interests of European and international security. "As a result of collective measures," states the congress resolution, "the military organization of the Warsaw Pact nations has grown stronger. The armed forces of the allied states are in a high degree of readiness, and are a dependable guarantee for the peaceful labor of the fraternal peoples." They are equipped with the most advanced military technology, and they possess highly skilled personnel who are totally loyal to the ideals of communism and capable of skilfully using the powerful equipment in combat.

Along with all the armed forces of the Warsaw Pact states, the air defense troops have also been developing. From separate individual national detachments, they have become a unified international force, capable of carrying out strategic missions in defending the population and installations of the fraternal socialist nations against enemy air attack.

The underlying ideas of military solidarity and joint actions by the proletariats of all nations were stated by the founders of Marxism-Leninism. K. Marx wrote that it is essential to see to it that "the workers of various nations not only feel but also act as brothers and comrades fighting for their liberation in a single army."[1] The peoples of the socialist republics and their armies, stressed V. I. Lenin "without fail need a close military (emphasis mine, author) and economic alliance for otherwise the capitalist ... will suppress and stifle us one by one."[2] Lenin brought out this same idea very clearly and convincingly in his report at the first session of the VTsIK [All-Russian Central Executive Committee], seventh session, in February 1920. "... In confronting the enormous front of

1. K. Marx and F. Engels, Soch. (Works), Vol 16, p 195.
2. V. I. Lenin, Poln. Sobr. Soch. (Complete Collected Works), Vol 40, p 4[illegible].

imperialist powers, we who are fighting against imperialism are an alliance requiring close military solidary, and we view any attempt to violate this solidarity as a completely intolerable phenomenon, as a betrayal of the interests of the struggle against international imperialism..."[3]

Lenin's ideas on the unity of the socialist nations and their armed forces determine the basic provisions in the policy and activities of the communist parties in the nations of the socialist community. Developed under new historical conditions by the CPSU and the other fraternal parties they comprise the theoretical basis for the solidarity and military community of the armed forces of the socialist nations, including the PVO Troops of the Warsaw Pact nations.

Life itself has shown that concern for strengthening the defenses of socialism is not only a national task for one or another state, but rather it is a common vital cause for the entire socialist community, and a natural process in socialist and communist construction. Regardless of the objective and subjective difficulties of forming and developing the socialist communities, the military alliance of socialist states has underneath itself sound socioeconomic, ideological-political and military historical bases.

The economic basis for the military community of socialist nations and armies is the commonness of socialist production relationships which are based upon public ownership, international socialist integration and participation of the community's members in the Council for Economic Mutual Assistance [CEMA]. Within CEMA the national economic plans are coordinated, complicated problems of production, scientific-technical and trade collaboration are successfully solved, and international specialization and cooperation in all areas of production are deepened. These comprise the material and technical basis for the military might of the states.

The 25th CEMA Session unanimously approved the Integrated Program for deepening and improving collaboration and for developing socialist integration among the CEMA nations. The realization of this program will help to further raise the defense capability of the socialist nations.

The political basis for the military community of socialist state armies is the uniformity of political power which belongs to the people headed by the working class and its communist vanguard, as well as the social class unity of a socialist society. The socialist system, the alliance of the working class and the peasantry, friendship among peoples, and leadership of society and the armed forces by Marxist-Leninist parties provide the growth of unity and solidarity among the nations, parties and armies of the socialist community. In recent years, the Soviet Union has concluded new treaties of friendship, collaboration and mutual assistance with the following fraternal nations: Bulgaria, Hungary, GDR, Poland,

3. Ibid, Vol 40, pp 98-99.

Romania, Czechoslovakia as well as Mongolia. These bilateral treaties, together with the multilateral Warsaw Pact, comprise a broad and constantly working system of ties and mutual obligations between each of the nations and for the socialist community as a whole, and they are their common victory.

The ideological basis which unites and welds the socialist community together is the commonness of the Marxist-Leninist ideology, the ideology of proletarian internationalism, friendship and fraternity among peoples, and a unity in understanding the necessity of defending the interests of socialism by collective efforts of the socialist nations and their armed forces. The spiritual unity of the soldiers from the fraternal nations make them reliable allies in the defense of socialism, it makes them class brothers and comrades in arms.

In contrast to the blocs and coalitions of the imperialist world, the military alliance of the socialist community is founded on the principles of complete equality for its members, mutual respect for their independence, sovereignty, nonintervention into internal affairs, mutual help and mutual support.

The allied nations and armies observe the principles of universal concern by the community nations for raising the combat capability and readiness of each socialist army; the defense of the victories and interests of socialism by the collective efforts of the nations and armies of the socialist community; establishing military collaboration among the socialist nations and their armies with the Soviet Union and its Armed Forces which are the main nuclear shield for the world socialist system; providing all-round aid to the armies of the peoples which are fighting against the imperialist armies. The observance of these Leninist principles of socialist internationalism makes the military forces of the world socialist system invincible.

The international fraternity of the workers and their military formations is founded on the commonness of a military historical past, and long military traditions. The participation of 250,000 volunteers in the armed defense of the world's first worker and peasant state during the years of the Civil War and foreign intervention inscribed a glorious page in the history of international proletarian solidarity.

Our people have not forgotten the feats of their foreign brothers and have not remained in debt to them. As true internationalists, Soviet soldiers during the 1930s fought in Spain, China and Mongolia. The military international fraternity of the workers in our nation was manifested particularly clearly during the years of the Great Patriotic War, when fighting alongside the Soviet soldiers against the common enemy were Polish and Czechoslovakian formations set up on Soviet territory, chast and soyedineniye from the People's Liberation Army of Yugoslavia, and during the concluding stage of the war, Bulgarian and Romanian troops. In the Far East,

Mongolian soldiers participated in the struggle against the Japanese imperialists. There were many examples of military collaboration between the Soviet Army and Hungarian patriots and German anti-Nazis

The Soviet Union provided great aid to the fraternal peoples in creating national military formations. On Soviet territory alone, two Polish armies, a Czechoslovakian combined-arms corps, two Romanian divisions and several brigades of Yugoslav volunteers, a total of more than 30 divisions were formed, trained and armed. The Soviet Army, having defeated the shock troops of imperialism in the course of World War II, to a decisive degree contributed to the success of the people's democratic and socialist revolutions in a number of European and Asian nations.

After World War II, in endeavoring to halt the victorious advance of the world revolutionary process, the ruling circles of the imperialist states, and above all the United States, assumed a policy of exacerbating the international situation and of preparing for a new war against the USSR and the nations following a socialist path. In 1949, under the U. S. aegis, the aggressive North Atlantic Pact (NATO) was founded. Later on SEATO, CENTO and other military and political blocks of the imperialists were formed. In violation of the Yalta and Potsdam agreements, West Germany became a member of NATO in 1965. The imperialists of the United States and their partners in the agressive blocs began a rabid arms race, and created thousands of military bases around the socialist states.

Under the conditions of the greatest threat of war, the existing system of bilateral agreements of friendship and mutual aid between the socialist nations was not sufficient. The combined forces of imperialism had to be opposed by the combined military might of the socialist states. For precisely these reasons, in 1965, the Warsaw Pact was concluded on friendship, collaboration and mutual aid. The Warsaw Pact embodied and further developed the Leninist ideas of proletarian international solidarity, the ideas of consolidating the military efforts of the socialist states and their armed forces.

The military cooperation of the Warsaw Pact PVO Troops underwent two stages in its development.

The first stage was the establishing of collaboration and coordinated actions between the PVO Troops of the allied armies on the basis of bilateral treaties of friendship and mutual aid. In time, this stage encompassed the 1945-1955 period. Inherent to this period was the development of national air defense systems in each nation and the periodic coordination of actions for the air defense personnel of two nations which, as a rule, were neighboring ones. During these years, on a bilateral basis, the representatives of Soviet air defenses provided significant aid to the fraternal nations in organizing and reequipping the allied PVO Troops.

The second stage began with the formation of the Warsaw Pact Organizations in 1965 and has lasted up to the present. This was a qualitatively new

stage in the development of military collaboration among the European socialist states, including in the area of air defenses for these nations.

In the 1950s, the reactionary circles of the imperialist states, and above all the United States, concentrated the basic efforts in the area of military development on creating strategic nuclear forces which were viewed as the main means of attack in a future war. The development of large strategic jet aviation, ballistic missiles and other means of air attack -- all of this increased the role of the PVO Troops. They had the job of successfully repelling an air attack by any aggressor a long distance away from the defended regions and installations. For carrying out this mission, it was essential to organize air defenses for the entire territory of our nation and the Warsaw Pact nations. It was essential to raise the combat effectiveness of air defenses and make them insurmountable.

For this purpose, a unified air defense system was set up for the Warsaw Pact nations. At this stage, the basic air defense weapons were guided antiaircraft missiles of varying range and purpose, aviation interception complexes, different automated control systems and radioelectronic equipment. The PVO Troops of not one or two nations but rather of several Warsaw Pact states began to participate simultaneously in the exercises.

In the air defense system of the defensive organization of the Warsaw Pact nations, diverse forms of collaboration were worked out. These helped to carry out the common missions and to further strengthen the military friendship of the allied nations and their armed forces.

The ecretary of the podrazdeleniye party organization Capt Petr Pavlovich Dudarenko gives great attention to the men standing combat duty. In the photo: Officer P. P. Dudarenko instructs the Komsomol member Pvt G. Sanosyan before the issuing of the next operational news sheet.

Photo by K. Subbotko

The Warsaw Pact member states coordinate their defensive measures on the level of the ministers of defense and the Joint Command. Each year meetings for the command are conducted as well as conferences, symposiums, and assemblies on various levels to discuss urgent problems of developing the armed forces, the procedures for operational, military and political training, as well as on scientific-technical and military theoretical questions.

At the meetings for the command of the PVO Troops, the result of military and operational troop and staff training are summed up, new training missions are set, and the basic directions in developing the antiaircraft missile troops, the air defense fighter aviation, the radar troops and the air defense signal troops are determined. There is a creative exchange of opinions and acquired experience on a broad range of questions related to improving the air defense system of the European socialist nations, as well as in the area of training and indoctrinating the personnel of the air defense chast and soyedineniye. The achieved results and existing shortcomings are evaluated thoroughly and self-critically.

The extensive mutual aid in training and retraining military personnel also contributes to the development of military collaboration between the Warsaw Pact PVO Troops. This form of collaboration is carried out by sending military specialists to the allied armies as well as by training national military personnel in the Soviet military schools.

The joint training of Soviet, Bulgarian, German and other air defens' specialists helps not only to strengthen friendship, but also to work out a common understanding of the questions of tactics and operational arts, and the use of military equipment and means of command for the PVO Troops. In the classrooms and on the training grounds, the commanders from the fraternal armies, in feeling mutual support, arrive at better mutual understanding and coordinated actions.

The process of outfitting the fraternal armies with the same type of modern military equipment and weapons aids significantly in strengthening the community of PVO Troops of the allied socialist states. The scientific and technical revolution which is developing at an unprecedented rate and scope has encompassed all aspects of socioeconomic development, including military theory and practice. The periodic reequipping of the armies including the PVO Troops has caused by this revolution, with new more advanced equipment requires, as is known, great material and financial expenditures. It would be diffcult to solve such problems by the individual efforts of the separate states. For this reason the nations of the socialist community increase the military technical outfitting of their armies in two ways: they supply the national armies with domestically produced weapons and with weapons produced in the fraternal nations or created by cooperation and specialization within CEMA.

The successful development of the economy, science and technology in the Warsaw Pact nations has made it possible for them during the last decade

to outfit the PVO Troops with new modern military equipment and weapons. The combat air defense means available to us, pointed out the Soviet Minister of Defense, Mar SU A. A. Grechko, "are capable of dependably hitting both enemy aircraft and missiles, regardless of the altitude and speed of their flight, at great distances away from the defended objectives."

The mutual aid, collaboration and coordination of efforts by the socialist nations in the area of strengthening the air defense system have made it possible to significantly strengthen the combat capabilities of the air defense soyedineniye and chast of the Warsaw Pact nations.

The collaboration between the Warsaw Pact Troops is also strengthened on the basis of developing coordinated actions between them. Joint exercises are the best form of this collaboration and coordinated action.

The combined troop and command-staff exercises within the system of the military organization of the Warsaw Pact nations are a natural process in exercising the function of defending the socialist community. The joint exercises are a good school for combat skills of the fraternal armies. The exercises indoctrinate the personnel in a spirit of socialist internationalism, troop comradeship and combat friendship. In carrying out common missions, the men get to know each other better, they learn to surmount the difficulties of modern combat together, and they gain greater mutual confidence, sincere respect and sympathy.

The political bodies of the fraternal nations also do a great deal to strengthen contact and to develop all-round collaboration between the PVO Troops. For the purposes of a mutual enriching of experience in party political work, delegations of political workers are exchanged, and there are meetings between the leaders of political bodies, an exchange of military political literature, films, photographic exhibits and visual aids.

At the joint exercises, mixed editorial staffs are set up for the military newspapers, radio news, and groups of movie operators. Joint political and cultural measures are conducted, and these help to strengthen military collaboration.

The existing military collaboration between the Warsaw Pact PVO Troops is broadening and growing stronger.

The past more than 15 years have clearly substantiated the enormous significance of the Warsaw Pact for defending the interests of socialism and for halting the aggressors. The allied nations and armies in 1956 helped the Hungarian people to liquidate a counterrevolutionary revolt, in 1961, they prevented the military provocation which was being prepared against the GDR, in 1962, they prevented the intervention of American troops in Cuba, and in 1968, thwarted the intrigues of the internal counterrevolution and international imperialism in Czechoslovakia. For many years the allied socialist nations have provided all-round aid to the Vietnamese people in their struggle against the American interventionists, and they have acted decisively in defending progressive regimes in the Arab nations.

"The socialist community" said Comrade L. I. Brezhnev, "is now an association of states with which, in terms of strength, no comparison can be made for any alliance or any coalition which existed in the past or exists presently." The soldiers of the Warsaw Pact nations in a single military formation vigilantly and reliably defend the security of the peoples and the victories of socialism.

PARTY CONCERN FOR COMBAT DUTY

By Maj Gen Avn V. Kuligin,
First Deputy Chief of the Political Administration of
the PVO Troops

The PVO Troops have been entrusted with a mission of enormous state importance, that is, to provide the security of the air frontiers of the motherland. The air defense personnel are constantly at work in carrying out this responsible mission. They remember the words of L. I. Brezhnev stated in the report of the CPSU Central Committee to the 24th CPSU Congress: "All that has been created by the people should be reliably defended." They remember this and do everything to be ready any moment to destroy an air enemy in the most complicated situation. They vigilantly stand combat duty and this, in a concentrated form, reflects the results of the military skills and the morale and psychological strength of the personnel.

The success of combat duty is provided by the entire system of military and political training, and by the complete and careful instruction of each specialist, crew, shift and group. Many years of practical experience have convincingly affirmed that combat duty is stood in an exemplary manner in those chast and podrazdeleniye where the entire training process has been organized considering the requirements of modern combat and where proper order is strictly upheld.

In combat duty, as in actual combat, the basic figure is the man, the soldier who is politically intelligent, who possesses the necessary morale, military and psychological qualities, and who has mastered the assigned weapons and equipment. These qualities, as is known, are developed by the entire way of military service, by painstaking indoctrinational and ideological work by the commanders, political workers, party and Komsomol activists.

To an enormous degree the development of high morale and military qualities in the soldiers is aided by party political work which is well thought out, effective, and closely tied to the missions being carried out. In the troops, a definite system of such work in combat duty has been developed and tested out in practice. It includes three basic stages: the

period of preparing for combat duty; the immediate execution of the combat mission and summing up the results of combat duty.

It must immediately be emphasized that party political work in combat duty requires great art from the comanders, political workers and all the activists, and it is the most complicated and responsible area of their activities. For this reason it is an even greater pleasure to point out that a majority of the commanders and political workers successfully carry out this responsible mission.

As an example, let us take the chast where Lt Col A. Terekhov is the political worker. Here preparations begin long before the personnel go on combat duty. The party political work is focused primarily on creating a high combat mood and a creative upsurge in the collective.

Before going on duty, the men again are reminded of the demands placed by the party and government, the Minister of Defense and the Commander-in-Chief of the PVO Troops on the air defense troops concerning the necessity to constantly observe high vigilance and combat readiness. Then the commander or the political worker gives a military political review of events which have occurred throughout the world over the last month. Such reviews develop in the men a feeling of personal responsibility for the security of the nation's air frontiers.

Meetings with the officers are held, in addition to assemblies of the personnel, and when necessary, party and Komsomol meetings.

Particular concern is shown for the technical, tactical and special training of the personnel. For deepening the knowledge of the men, use is made of methodological training conferences, technical circles, additional exercises, specialty contests, competitions, quizzes and unannounced tactical exams. Individual help is also given. Special supervision is given to the training of specialists upon whom, to a decisive degree, the execution of the combat mission depends.

Unfortunately, proper attention is not always given to the preparatory period everywhere. At times the commanders, political bodies and party organizations superficially think out their plans, they do not exert an influence on all of the military personnel and do not sufficiently take into account the level of training in certain specialists. For example, in the party organization where Capt G. Pototskiy is a member, the activists frequently overlook individual soldiers. And it is precisely they who permit deviations from the requirements of the regulations and do not carry out their duties precisely. This occurs because here a narrow circle of people participate in the indoctrination work.

The organization and execution of party political work during the period of carrying out the combat mission by the personnel also have their own particular features. The problem is that during this time, it is impossible to divert a significant portion of the soldiers, sergeants and officers into meetings, conferences, talks and other mass measures. At the

same time, party influence during this period should not weaken but rather grow stronger. Party political work should excel in high effectiveness, it should be carried out flexibly and efficiently, and it should encompass all the personnel without exception. How can this be achieved?

Let us turn to the experience of the advanced podrazdeleniye where St Lt M. Kozlov is the deputy commander for political affairs. This close-knit collective for several years has been an outstanding one, and it stands combat duty excellently.

The commander and political worker of the podrazdeleniye, together with the party and Komsomol organizations, have a creative approach to carrying out the party political work. Individual work is the basic method for influencing the soldiers, sergeants and officers. Talks are held with them, and during these talks, they stress the significance and necessity of high vigilance at the combat posts, as well as unfailing execution and organization. The commander and the political worker endeavor to meet more frequently with these specialists. Every free minute is rationally used for more thoroughly acquainting the men with the functional obligations, and for studying the technical and tactical characteristics of enemy aircraft and the methods of the combat use of the aircraft. The soldiers, sergeants and officers are promptly given information on changes in the air situation. Advanced experience is effectively propagandized. For this use is made of operational news sheets, talks by the agitators and the loudspeaker system, and the outstanding men themselves speak. This entire complex of political indoctrination measures is run by the labor and energy of the activists, and their work is skilfully directed by the commmander and the political worker. They hold methodological exercises with the activists, they instruct them and inculcate the skills of indoctrination. Special memorandums have been compiled for the agitators, for the editors of the operational news sheets and for the Komsomol and party group organizers of the duty shifts. These memoranda help them to work more effectively with the men.

The podrazdeleniye party organization actively helps the commander to create a situation in the collective whereby unconcern is eliminated, and it is possible to maintain a high morale and psychological mood among the men, as well as their readiness to take decisive actions. Each communist, during the combat duty, receives a specific assignment, and himself is an example of skilled and enterprising actions in any situation.

The work does not halt after duty. Along with the activists, the commander and the political worker scrupulously analyze the results of fulfilling the combat mission, and take measures to prevent mistakes. In a word, well thought-out and pertinent work with the men is carried out in this collective. And this has greatly determined their success.

A rise in the role of the communists in preparing the personnel to carry out the combat mission is characteristic not only for the party organization of the podrazdeleniye which was discussed above, but also for many other collectives. The questions of combat duty, vigilance and combat readiness, and the personal example of the communist at present more often,

and most importantly, more professionally, are discussed at the party meetings and the sessions of the party bureaus. The party organizations have made it a practice to hear the communists about their fulfillment of service and party duties, and they hold talks and colloquiums about the requirements of the Statute and program of the CPSU and the 24th Party Congress. All of this helps to raise the feeling of responsibility among the communists and strengthens their authority among the nonparty personnel.

The increase in militancy and activeness of the party organizations in carrying out the chief mission, which combat duty is undoubtedly, involves a further improvement in leadership over them by the political bodies.

Sr Lt A. Brutskiy has proven a good specialist. An outstanding man in training and a communist, he takes an active part in the podrazdeleniye. The advanced missileman has already become a specialist first class.

This can be shown from the example of the political department where Lt Col G. Polyakov works. It has become a practice for this political department to systematically analyze the activities of the communists in the duty shifts, crews and groups, to study advanced experience and to constantly introduce it. Recently, it has studied and generalized the experience of several party organizations, commanders and political workers. The political department carefully organizes the training of the activists, it holds methodological and theoretical conferences, and colloquiums on the questions of party political work during combat duty, and provides help on the spot.

Of great benefit was the procedural training conference on the content and basic forms of party political work during combat duty under present conditions. Participating in the exchange of opinions was a broad range of activists including: commanders, political workers and secretaries from the party and Komsomol organizations. The political department carefully studied the materials of the creative discussion, it generalized the acquired experience and prepared specific recommendations. Characteristically, these recommendations took into account the particular features of the job performed by each specialist. It is one thing, for example, to conduct indoctrination with radar troops or missilemen, but quite something else to do it with pilots or the crews of a command post.

For example, in an aviation chast, it is very important to organize close-knit and coordinated work by the pilots, technicians and specialists in charge of airfield technical, flight radio and light support, and to show as much concern as possible for the training of the pilots, and for the teamwork of the crews in the command post and the guidance post. It is also important that the duty officers, the pilots and flight controllers each day deepen their knowledge about the means of enemy air attack as well as the tactics of its actions. And how much work is required to keep the military equipment in a state of constant readiness!

All of this, naturally, makes an impression on the character of work done with the men. A significant portion of the work is done in the duty hut where the visual agitation has been concentrated, and where radio and television equipment has been installed. This greatly broadens the opportunities and eases the work of the activists.

In the podrazdeleniye where Capt V. Morozov serves, for example, in the duty hut there is technical and special literature, memorandums for the pilots, technicains, aviation specialists, for the party and Komsomol activists, and there are materials on the next subject of Marxist-Leninist training and political exercises, in addition to magazines and newspapers. Here also are stands on the following subjects: "Approach Time and Combat Readiness," "Standing Combat Duty -- the Execution of a Combat Mission," "The Area Which You Are Defending," "The Bestial Face of Imperialism." There are diagrams on which the pilot can visually trace his actions during various stages of the interception and can more thoroughly study the tactics of a probable enemy. The activists, in talking with the flyers, try to make maximum use of the available literature and visual agitation.

There are also many unique features in the work of the men of the command posts and control points, the significance of which in modern combat is hard to overestimate.

Our political bodies and party organizations have acquired some positive experience in working with the men of the command posts. However, it would be incorrect to assert that the situation everywhere is fine in the organization of party political work in the organs of combat command. In certain chast, proper attention as before is not given to this work.

Thus in the party organization where Maj A. Titov is the secretary, the questions of party political work are not thoroughly thought out, and the measures carried out are at times divorced from the tasks being performed by the personnel.

Individual political bodies do little to involve the command in conducting indoctrination work, and they do not sufficiently study and generalize advanced experience. It also happens that the political officers themselves are rarely in the duty crews, they do not instruct the party and Komsomol activists, and do not analyze their work. Such an underestimation of party political work with the men, naturally, weakens the success in carrying out the chief mission.

In a modern nuclear war, if the imperialists start it, the enemy will bet everything on crossing the air defenses and breaking through to the objectives. The enemy will employ the most destructive weapons against the air defenses. The missile troops, pilots and radar operators must carry out their combat mission under unusual conditions. This is why the PVO Troops must have exceptionally strong morale and psychological strength. How can this be achieved? How can combat duty itself be used for this?

The main thing in morale and psychological training is to indoctrinate in the servicemen high political awareness, ideological conviction and loyalty to the ideals of communism. It must be said that the commanders, political bodies and party organizations are successfully carrying out this mission. At the same time, they are constantly looking for ways to further improve the morale and psychological training of the personnel. They also use the slightest opportunity for developing such high morale and military qualities as daring, decisiveness, initiative and total love for the motherland in the soldiers, sergeants and officers.

A good deal has been done in this area in the chast where Lt Col N. Kunitsyn is the chief of the political department. This unit has glorious military traditions. During the Great Patriotic War, its aces shot down 104 enemy aircraft. Eight pilots were awarded the title of Hero of the Soviet Union for heroism and courage shown in battles against the Nazi invaders. During the difficult year of 1941, six pilots repeated the feat of Gastello. During the postwar years, the chast has been awarded the Commemorative Banner of the CPSU Central Committee, the Presidium of the USSR Supreme Soviet and the USSR Council of Ministers, and has been presented the Commemorative Banner of the Military Council of the PVO Troops.

In the chast, a room of military glory has been set up. Here lectures, talks and special-subject evening meetings are held, as well as meetings with war veterans. For example, not long ago there was a special evening meeting on "Be On Guard, Do Not Lessen Vigilance."

Great significance is given to the ritual of going on combat duty for the men. The trooping of the color and the reading of the commander's order are always conducted in a ceremonious manner, and put the aviators in a combat mood, ready to stand duty in an exemplary manner.

The personnel holds sacred and continues the military traditions by their own combat feats. During the exercises which were held this year, the aviators acted skilfully and decisively and showed a good deal of initiative. For this, the Commander-in-Chief of the PVO Troops presented a commendatory certificate to the personnel of the chast.

Discipline is of particular significance for successfully carrying out a combat mission. In the duty crews and shifts a stricter regulation is established over all the life and activities of the men. Maximum attentiveness and organization are demanded from each soldier, sergeant and officer. For this reason, the commanders, the political bodies and the party organizations act correctly when they give primary significance to the questions of strengthening discipline, and endeavor by all means of indoctrination to have each soldier profoundly aware of the requirements of the military regulations and orders. They act correctly in constantly stressing that the time for executing orders during combat duty should be measured in seconds. Certainly, the slightest negligence or an insignificant violation of the regulations can jeopardize the execution of the combat mission as a whole.

In speaking about the indoctrination of efficiency, the attention of the commanders and chiefs should be focused on how important it is to promptly spot the endeavor of the men to stand combat duty in an exemplary fashion, and to make . 11 use of the existing opportunities for moral and material incentives for excellent standing of combat duty. And it happens that soldiers, sergeants and officers in one or another podrazdeleniye are commended for everything except combat duty. This, certainly, does not help to indoctrinate a desire in the men to stand duty today better than yesterday, and tomorrow better than today. In combat duty, any, even the slightest, infraction of the requirements of the regulations and the military oath as well as the orders and instructions regulating the standing of combat duty by individual personnel must be judged with all strictness and loyalty to principles. The party and Komsomol organizations do not have the right to overlook even a single instance of violating discipline by the communists and Komsomol members.

Along with raising exactingness, the commanders, the political bodies and the party organizations must be constantly concerned for the domestic conditions and recreation of the soldiers, sergeants and officers in the duty podrazdeleniye, shifts and crews. Correct procedures are followed by those commanders and political bodies which see to it that in each duty podrazdeleniye there are small mobile libraries with political, scientific-technical, military and artistic literature. The men must have an opportunity to listen to the radio and watch television, to read recent newspapers and magazines daily, that is, to create conditions under which it is possible not only to supplement one's knowledge, but also to rest well after intense work.

Undoubtedly, the commanders, political bodies and party organizations have done a good deal to improve the quality and raise the effectiveness of party political work in combat duty. In the chast, positive experience has already been accumulated in this regard. But this is clearly insufficient.

The 24th Party Congress, having emphasized the increased aggressiveness of the imperialist states, and above all the United States as well as the danger of a new world war, has demanded that the Soviet Armed Forces, including the air defense troops, raise vigilance and combat readiness in every possible way.

This obliges the commanders, the political bodies, the party and Komsomol organizations to fight even harder to further strengthen military discipline and order, to raise the quality of military training and the standing of combat duty, as well as to constantly improve party political work with the personnel carrying out a combat mission.

First of all, it is essential to raise the personal responsibility of each soldier and each specialist for the job assigned. The commander and political organizations should see to it that all the soldiers and sergeants without exception, prepare for combat duty not as any ordinary or conventional thing, but as the fulfillment of an important state task.

For raising the combat activeness of the men, it is essential to use the entire arsenal of political indoctrination forms and, of course, such a strong means as the socialist competition. Unfortunately, in the chast as yet a competition for the best specialist of a duty shift or the best combat crew is very rarely organized. Here there is great scope for the communist and Komsomol members to show initiative and creativity.

It is also essential to raise the demands and requirements placed on each communist for setting a personal example in carrying out a combat mission. Each communist should have a specific assignment and carry it out conscientiously. The command should be more widely involved in indoctrinational work in the duty crews and shifts, and the selection and placement of the party and Komsomol activists must be more thoroughly thought out. One should not limit oneself to a cursory instructing of the activists, but rather patiently instruct them on the spot in the ability to work with the men. The main thing is to teach the activists to conduct mass agitation under the complicated conditions of carrying out a combat mission by the men.

It is essential to proceed from the fact that combat duty is a concern of exceptional importance which requires the closest attention from the political bodies and the party organizations. Combat duty requires from all air defense personnel vigilance raised to the highest level, great knowledge and high skills. All of this obliges the commanders, the political bodies and the party organizations to improve party political work as much as possible in the duty podrazdeleniye, shifts and crews, and to constantly be concerned that the personnel defend the skies of the Soviet fatherland unstirtingly with a maximum stress on physical and moral forces.

THE YEAR OF THE 24th CPSU CONGRESS -- A YEAR OF OUTSTANDING TRAINING AND SERVICE

The missile troops of the PVO Troops are celebrating the nationwide holiday of Missile Troops and Artillery Day with significant successes in military and political training and with a rise in military readiness. Like many chast, particular achievements have been made by the men in the SAM [surface-to-air missile] regiment commanded by Col Konstantin Platonovich Valulenko.

In the chast there are 99 percent class specialists. Among them are several score masters of military skills. One out of every two soldiers, sergeants and officers is a specialist first and second class and all the guidance officers are masters of military skills and specialists first and second class; 22 percent of the sergeants have been trained on the level of technicians. Some 59 percent of the unit's personnel are outstanding men in military and political training, there are 59 percent outstanding squads and crews, 68 percent of the platoons and 80 percent of the batteries and battalions also have the title of outstanding.

Great work has been done to master related specialties. Suffice it to say that 88 percent of the officers have mastered them as well as a predominant majority of the soldiers and sergeants.

The missile troops have successfully met the combat training missions in carrying out firings on the firing range. For high military skills and for able and enterprising actions, the missile troops have merited a commendation from the superior chief.

The socialist competition has developed widely in the chast. The communist and Komsomol members are in the vanguard of the struggle for successfully carrying out the decisions of the 24th Party Congress.

The missile troops are loyal to the military traditions born during the years of the Great Patriotic War. The antiaircraft gunners of the chast at that time shot down more than three score Nazi aircraft. Their feat has been an example for the youth.

The materials published below deal with the commander of the outstanding chast Col K. Vakulenko, the successes in the service and training of the missile troops, as well as the diverse and energetic activities of the political workers, party and Komsomol organizations.

COMMUNISTS IN THE VANGUARD

By Lt Col N. Prokhorov

The men of our chast have celebrated this year with a broad development of the socialist competition. The pitch has not fallen after the 24th CPSU Congress. The missile troops with particular enthusiasm have struggled for new goals in military improvement, in strengthening discipline and proper order, and in raising combat readiness. And at present it can be said with pride that the high obligations have been not only fulfilled but overfulfilled.

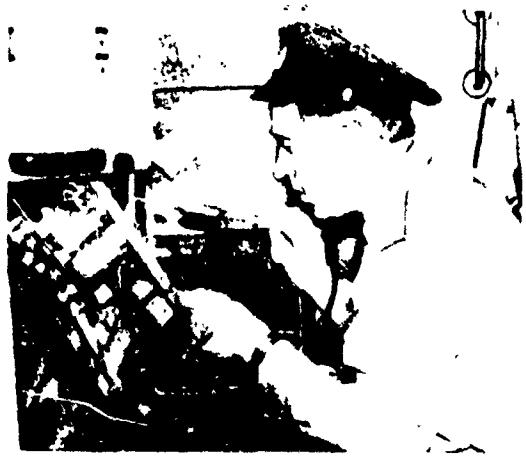
The communists are in the vanguard of the struggle for achieving high indexes in military and political training. Some 60 percent of them are outstanding men in military and political training, all the communists are class specialists, with 80 percent first and second class, and 30 percent are masters of military skills. The ranks of the communists have also been added too. On the eve of the congress 26 applications from the best Komsomol members and the leaders of the socialist competition submitted applications to join the party to the party organizations. For example, Lt S. Abramov has become a communist. He is a knowledgeable and efficient officer, and a specialist of a higher class. The outstanding platoon which he commands emerged as the victor in the pre-congress competition and even now is among the finest.

The communists have also provided and are providing the commander with invaluable help in improving the military skills of the men, in raising combat readiness and strengthening military discipline. The effectiveness of the party political work and the creative approach of the party and Komsomol organizations in the podrazdeleniye to solving the diverse problems of military training and the life of a military collective have been clearly substantiated in the successful fulfillment of the combat missions on the firing range and in the course of the tactical exercises against the background of a complicated air situation.

Extensive and diverse work has been done to have the personnel study the materials and decisions of the congress. The commanders, the political workers and the party and Komsomol activists have endeavored to make each man aware of them. The communist leaders take an active part in propagandizing the congress decisions and in explaining the tasks confronting the personnel of the regiment. For example, the chast's commander Col K. Vakulenko has spoken in almost all the podrazdeleniye.

The speakers group also propagandizes the congress materials with vim and enthusiasm. The experienced propagandists, communist A. Kulagin, V. Yesipenko and others, not only give talks before the men, but also conduct consultations for officers of the podrazdeleniye. This makes it possible for the latter to conduct political exercises, lectures and talks with the personnel on a high ideological, theoretical and methodological level. Supervision over the training of propagandists has been strengthened. We, in particular, have made it a practice and still make it a practice to discuss the individual speeches given by the officers.

The good initiative of the chast's Komsomol activists Lt N. Vikhrov and Pvt Ye. Goydin has been supported. They proposed that a Komsomol lecture series be organized on propagandizing the congress materials. The Komsomol members responded with great interest to the youth meetings on the subjects "My Homeland is Broad," "All That the People Have Created Should be Reliably Protected," and others. Party political work was conducted with particular energy during the course of tactical exercises involving field firing. In all the podrazdeleniye and crews, talks were held on the subject "Excellent Execution of Tactical Exercises -- Our Response to the Decisions of the CPSU Congress." The communists V. Galatenko, A. Stepurko, P. Vasil'yev, V. Molyarov and many others were the initiators of the struggle for the excellent fulfillment of missions in the course of the tactical exercises. The personal example of the communists and Komsomol members and their high training were that beacon which the other soldiers followed.



The active rationalizer Maj V. Yur'yev has done a great deal for maintaining the equipment in a constant state of combat readiness. In the photo: Officer V. Yur'yev repairing a malfunctioning unit.

Photo by E. Murad'yan

In the course of the exercises, advanced experience was effectively generalized and given to all the men. Communists N. Aleksyuk and N. Omelenchuk organized the issuing of operational news sheets, radio news and printed newsflashes. All of this, naturally, was an incentive for the missile troops to carry out the combat training missions on a high level.

As is known, a specific feature for the PVO Troops is that they must be ready at any moment to repel an attack by an air enemy. This is why the political workers, the party and Komsomol organizations always endeavor to indoctrinate in the men such necessary qualities in combat as daring, courage and decisiveness. Every day work is done to instill in the men hate for the imperialists and their henchmen. For these purposes, special evening meetings were held on the following subjects: "Take the Example of a Hero," "When the Nation Demands a Hero, Any of Us Can Become a Hero," "The American Army -- An Army of Murderers," and others. At one of these meetings, a former prisoner from the Nazi concentration camp at Buchenwald gave a talk. At the same time the men were told about the brutality of the American imperialists in Southeast Asia.

In carrying out all these questions, the communists have given primary significance to providing the vigilant standing of combat duty. At present chief attention is being paid to explaining the party decisions and the demands to strengthen the defense might of our nation to the personnel directly on the duty shifts, and to studying the documents which determine the organization and procedure for standing combat duty. Ordinarily for this, a group of staff officers visits the subunit and provides help to its commander in preparing to stand duty.

Lt Col I. Bortnovskiy

Maj V. Yesipenko

Drawings by B. Vorob'yev

Recently, such a group, headed by the deputy chast commander for a week worked in one of the podrazdeleniye in preparing to begin a combat watch. The staff representative Maj A. Plaskovich, conducted an exercise on

on studying the manuals relating to combat duty. With the men of the leading missile specialties, a detailed analysis was made of the methods for combatting low-flying high speed maneuvering targets as well as targets using various types of interference.

Communist A. Kulagin carefully instructed the party and Komsomol activists, and helped in planning the work. Officer V. Yesipenko told in detail about the tactical actions of the U. S. aviation in Vietnam and the Israeli in the Near East. Help was provided on the spot in solving several questions related to the material and service support of the personnel. Party and Komsomol meetings were held at which they discussed the vanguard role of the communists and Komsomol members in bringing about the vigilant standing of combat duty.

In the chast, special seminars have also been held on exchanging work experience during the period of preparing for and standing combat duty. At the seminars, in particular, they examined the following questions: "On the Practical Work of the Party Organizations in Indoctrinating the Communists and all the Personnel in High Responsibility for Carrying out the Requirements of the Documents Regulating Combat Duty," and "The Role and Place of the Deputy Podrazdeleniye Commander for Political Affairs in Mobilizing the Men to Maintain Constant Combat Readiness."

The party organization has seen to it that the officer communists observe strict principles in evaluating the actions of each man during duty. Thus, in one podrazdeleniye it was discovered that all the men during duty had received, as a rule, excellent evaluations, although inspections showed that in fact the situation was not so smooth. It was essential to direct the attention of the podrazdeleniye command to the fact that such high evaluations misled the party and Komsomol organizations, and did not make it possible to find correct measures to eliminate the shortcomings.

In organizing party political work in the duty podrazdeleniye of the chast individual work is carried out, for example, brief talks with small groups of men. The work experience of communist V. Bodrov in this area is characteristic. He begins his workingday directly in the duty shift. He analyzes the evaluation of each man, he talks with those who had comment and participates in summing up the results.

In the Lenin room of the podrazdeleniye where communist Bodrov serves, and in the areas where combat duty is stood one can find pertinent visual agitation. For example, the following stands have been well done: "Soldier! the Frontier is Near, be Vigilant!" "In Combat A Second Is Precious," and others.

The daily painstaking work has brought about positive results. For several years, in the chast there have been no violations in standing the combat watch.

The socialist competition is an important incentive for achieving high indexes in military and political training. The men of the chast have

unanimously seized upon the initiative of the Kotovskiy tank troops who have been the initiators of the competition to properly celebrate the 24th CPSU Congress. At the party and Komsomol meetings, it was unanimously decided to win the title of an excellent chast by the time of the congress; all training and field firings were to be carried out with an evaluation of "excellent," and there was to be an increase in the number of outstanding men, class specialists, soldiers who had mastered related specialties, winners of the VSK [Military Sports Complex] emblems and rated athletes.

All these obligations were honorably fulfilled. But the men did not stop at the achieved level, but set new higher goals in the post-congress competition. They are successfully working toward them.

In remembering the instructions of V. I. Lenin on publicity and the comparing of the results from competition, we have constantly been concerned for generalizing and disseminating the experience of the advanced men. The experience of the recently promoted officer A. Stepanenko has been made known to all the commanders.

Characteristic of this advanced officer is a constant desire to improve the combat skills of his subordinates. In organizing the competition, he, together with the secretaries of the party and Komsomol organizations, discussed where the efforts of the men must be directed first, and determined what goals can be achieved by each man.

Capt V. Taraskin

Lt V. Rumyantsev

Drawings by B. Vorob'yev

In possessing high party qualities, officer Stepanenko, before taking any decision, as a rule, consults with the party activists, and if the question requires the participation of all the communists, then he proposes discussing it at the party meeting. The ability to promptly and correctly rely on the party and Komsomol organizations and the ability to direct the efforts of the communists and Komsomol members to solving the

problems ahead -- this is one of the decisive conditions which has helped the podrazdeleniye which the communist Maj A. Stepanenko leads to win the title of excellent for a period of five years.

In considering the specific features and complexity of training highly skilled specialists in line with the new Law Governing Universal Military Obligations, the political workers and the party and Komsomol organizations have helped the command to direct the efforts of the personnel to a more profound and rapid study of the equipment and its effective operation. The exercises of the technical circles, the quizzes, and the technical evening meetings have helped to raise the technical level of the men. At present all the soldiers and sergeants who have served more than 18 months in the chast are first class. In all of this, an important role has been played by communist I. Bortnovskiy. He has constantly been involved in the training of high class specialists and participates in propagandizing the experience of the best.

In the chast, extensive work has been done in indoctrinating the soldiers, sergeants and officers in the military traditions. During the war years, 33 enemy aircraft were shot down by the glorious antiaircraft gunners of the chast. The exhibits in the room of military glory tell about this. The young soldiers, in arriving in the chast, begin their service with familiarization with the unit's military traditions. They hear speeches by such veterans as Maj (Res) A. Shchetinko and Capt (Res) P. Solodukhin. And they have something to tell the youngmen as they participated in the combat actions of the Great Patriotic War in the regiment.

In a prominent place in the room of military glory there is the banner with the words inscribed in gold letters: "Be Worthy of the Glory of the Korchagin Troops." In front of this banner which was presented to the chast by the Komsomol members of one of the cities of our nation, the young soldiers take the oath to serve the motherland faithfully. We have a good tradition of having the young soldiers take the military oath by the monument to the Unknown Soldier. We also have a ceremonial presentation of the combat weapons and the assigning of the work area. First the commander of the podrazdeleniye speaks and tells to whom this weapon and military equipment had belonged and how carefully the predecessors used it. This encourages the new soldiers and causes them to master the weapons and equipment more rapidly. It is no accident that all the new soldiers during the first months of service become specialists third class, while individual ones achieve even higher results.

We also have developed good sponsorship ties with the local party, economic and Komsomol bodies. Joint measures are regularly held on the questions of the communist indoctrination of the youth. Advanced production workers and the sovkhoz and kolkhoz leaders are frequent guests of the troops.

For example, the winner of two Orders of Lenin, the director of one of the plants gave an interesting and meaningful talk. He told how the enterprise had won the title of collective of communist labor and wished the men excellent successes in service. The director of an advanced sovkhoz also told the men about the achievements of the agricultural workers.

The men of the chast take an active part in the military and patriotic indoctrination of the youth. In the schools, the Komsomol soldiers work as the leaders of detachments, and they head the motor vehicle, radio and shooting circles. MSgt V. Moiseyenko, Pfc V. Kiselev and Pvt N. Aldoshin lead the circles "Young Friends of the Soviet Army."

Along with the youth of the city, sports contests are frequently held in the paramilitary types of sports. The chast has been awarded a commemorative banner and a certificate by the CPSU Municipal Committee and the Municipal Executive Committee for successes in military and political training and for active participation in the military and patriotic indoctrination of the youth.

Inspired by the historic decisions of the 24th CPSU Congress, the communists and Komsomol members, as well as all the men of the chast see the purpose of their activities in always being ready to carry out any order of the motherland and to reliably defend its air frontiers.

MASTERS OF MISSILE STRIKES

By Maj K. Timonov,
Master of Military Skills

The year of the 24th CPSU Congress was noteworthy for the officers, sergeants and soldiers of our SAM regiment in the fact that under a situation as close as possible to conditions of real combat, it had to demonstrate its firing skill. In the course of the conducted exercises, the men responded to the congress decisions by the excellent execution of the combat training firing on the firing range, and by the successful execution of the missions related to repelling mass assaults by "enemy" air attack means.

The success was not accidental. It was the fruit of intense creative work by the commanders of all levels and by all the regiment's personnel. In daily combat training, we endeavored to constantly look ahead. In improving military skills, we prepared to combat an air enemy not only as it would be at present, but also as it might become tomorrow.

Below we will take up the unstinting work of the missile troops in the chast, the search for reserves to raise combat readiness, and the seeking out of advanced methodological procedures for training the men under the complex conditions of modern combat.

Let me begin with the training of a command post crew in one of the podrazdeleniye. We developed it, by using simulation equipment and flights of real aircraft. The new operators were not able immediately to master the fine points of precisely tracking a target. From the very first days, they understood that for successful work they would have to understand the principle of action for the antenna control systems, learn how to correctly tune

the indicator, to be able to rationally locate themselves at the work area and concentrate all attention on the signal returned from the target. They understood only a combination of a large amount of knowledge and a high level of training would provide the desired result.

The new operators were helped out by their senior comrades, the guidance officers. Sr Lt L. Malyarov had to work a great deal with Pfc V. Mova. The officer understood that he was training his comrade in arms, his assistant, and for this reason he did not consider time, and worked hard with his subordinate. He assumed an obligation to the collective of the podrazdeleniye and this was to train a shift of highly skilled operators. And he successfully carried it out.

The trips to the training firing fields had a positive effect of the training of the command post crews of the podrazdeleniye. Certainly in the area of permanent quarters it is not always possible to provide flights of real aircraft for training the missile troops, the parameters for the movement of conditional targets are not always acceptable and do not respond to the requirements, and so forth. At the training firing field, the exercises were organized in such a manner as to obtain maximum benefit from the training sessions. In the course of them, they worked through the actions of the command post crews under the conditions where the "enemy" employed all of the tactical stratagems used, in particular, by the U. S. and Israeli aviation. Including: various sorts of active and passive interference, course, altitude and speed maneuvering, crossing the zone of the antiaircraft missile troops at low altitudes, neutralizing antiaircraft missiles by using concealed approaches to the launching position, and so forth.

The crews were able to train soundly on mobile trainer simulator equipment. Such training sessions brought great benefit in carrying out firings at the firing grounds and at tactical exercises.

We would like to take up how they were able to reduce the time in fulfilling functional duties during the course of combat work. This time can be reduced only by excellent skills and by smooth teamwork between all the men and the crew. The firer must be able to skilfully calculate the necessary interception line, be confident of his forces and posses restraint in order in a few seconds to intercept the target and immediately open fire. This is why, in working through the problems of the firing course at the training firing grounds, we have paid attention to the psychological mood of the firers, and seen to it that they do not follow the old habit of: "The farther off I make the intercept, the easier the work will be."

The antiaircraft missile troops are constantly ready to carry out firing at the firing grounds. For this reason the command of the regiment and the staff each day keep watch over the level of training among the crews. If need be, measures are promptly taken to restore lost skills.

In this regard, I would like to focus attention on certain particular features, I would say, of a psychological nature. The launching crews, for example, in training on training missiles, exceed the norms of combat work

for an evaluation of "excellent," and work without any violations of safety procedures, with confidence. But it is merely a matter of switching to work with a combat missile and they lose their confidence, at times they become excessively cautious, although in terms of weight, the missiles are the same, and from the standpoint of performing the operations of combat work, no different approach is required. In order to avoid this, we have had to resort to deception. On the missile, the markings were temporarily changed, and the "features" of a training missile were removed and it was considered a combat missile. After a certain number of training sessions, the crews felt confident. And when the situation required, the norms for operations with combat missiles were exceeded for an evaluation of "excellent."

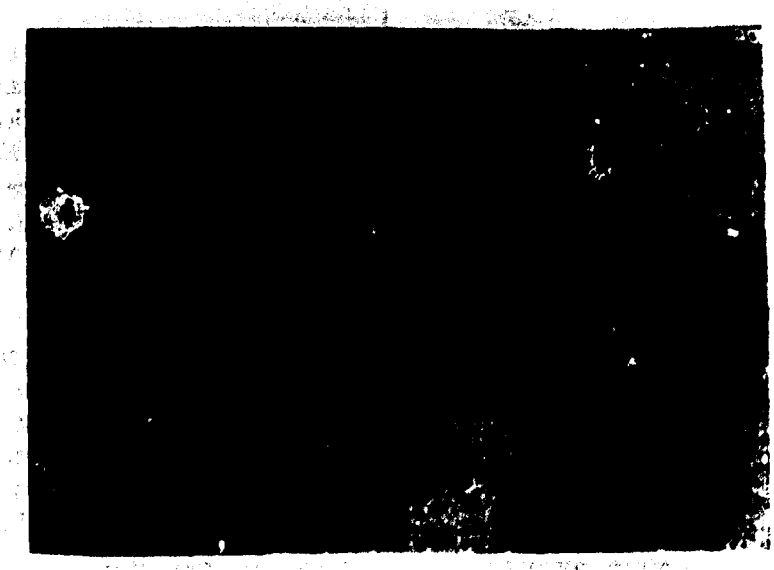
A surprise visit to the firing ground for carrying out firing did not catch the missile troops unaware. They acted clearly, with initiative and conviction. One of the podrazdeleniye was given the mission of rebasing the equipment to the firing grounds. A march had to be made first with motor transport and then by rail. Upon arrival in the firing region, they had to equip a launching position of the field type and receive the mission of defending the installation. The Komsomol and party organizations were mobilized to carry out all of this, and each man had a specific mission and firmly knew his duties.

And at the firing range, things were hot in the little and figurative sense of the word. Although at one time I had participated in combat missile launches, nevertheless, every time, in arriving at the firing range, you feel how the requirements have been increased in terms of the training level of the missile podrazdeleniye. You always find something new in the organization and execution of the firings. The types of targets have been improved, and their tactical and technical data have been improved. It becomes more complicated to fight the attacking "enemy." And this year, the mission of destroying a radio-controlled target had become significantly more complex. Its speed and ceiling had been significantly increased, while the time that it remained in the combat zone had been reduced. Only rapid and precise actions by the crew, without superfluous movements and bother, could help to safely destroy such a target.

But solitary experiences in field firing do not make it possible to fully evaluate the readiness of the podrazdeleniye to conduct extended combat as well as the tactical maturity and reaction speed of the command post crew and the firers. These questions are more objectively evaluated in repelling a massed attack by high-density group and individual targets which are vertically echeloned, using various sorts of maneuvers. Our excellently proven simulators are capable of creating such conditions. The air situation created with it requires high skills, organization and good judgment from the entire command post crew and the firers. Only a person to whom these qualities are inherent can confidently control combat under the conditions of a complex air situation.

In the course of carrying out the firings, the division command post sent a command to destroy the target with combat missiles. The target carried out the task of penetrating the zone of the podrazdeleniye by using various tactical stratagems which, as we know, a probable enemy which is capable of. The commander quickly evaluated the ability and readiness of the crews to carry out the combat missions.

The podrazdeleniye was ready to conduct combat actions. The description was made. The targets were assigned. First the firer gave the command of destroying the high speed high-altitude small target, and after this, a low-flying maneuvering one. The interception controller, Sr Lt L. Malyarov, in watching the screens of the indicators attentively, was the first to detect the target. The sequence of actions had been honed to the point of being automatic. There was the changeover to manual tracking and then ... the launch. The target was destroyed! The combat mission had been fulfilled.



In the photo: Officers A. Paliy, A. Plaskovich and V. Iosipchuk at the command post during combat duty.
Photo by E. Murad'yan

It was not easy for the missile troops in firing at the second target. The target literally excelled in performing fanciful maneuvers, it dove into the zone of the terrain markers, it used the passive interference, endeavoring to escape from the radar beam. But the interception controller had tracked many such targets on the training firing range. His actions were flawless, and the target was confidently destroyed.

On the firing range, the missile troops fired at several targets, and all with the full use of the fire capabilities of the installations. High speed, high altitude and low-flying targets were fired at far away from the defended "installation."

In the course of carrying out the firing, an occasion presented itself for the use of technical daring. When the approached time of one of the targets was slight, one of the high frequency assemblies went out. There was no time to analyze and eliminate the malfunction, and only excellent knowledge of the equipment, quick reactions and resourcefulness made it possible for the firer, Maj P. Vasil'yev, to take measures to restore the system to proper working order. The target was promptly destroyed.

Successful fulfillment of the firing was the result of outstanding skills, teamwork and high morale and psychological qualities among the officers, sergeants and soldiers of the unit. For excellent fulfillment of firing on the firing range, several advanced missile troops received commendations from the senior chief. Among them were: Pfc V. Mova, Sgt A. Popsuy, Sr Lts Ye. Zotov and L. Malyarov, Maj N. Omelenchuk, Lt V. Rumyantsev and others.

Having passed the test on the firing range excellently, we resolved not to rest at the achieved level. First of all, all innovations that had been encountered at the firing grounds were brought to the knowledge of all the personnel, and all the shortcomings in the training of the crews were carefully analyzed. For exchanging experience, the best trained specialists including officers V. Galatenko, P. Vasil'yev, Ye. Zotov, L. Malyarov, V. Gugnin, Sgt A. Popsuy, Pfc N. Romanenko and others visited the podrazdeleniye which had remained at the permanent quarters.

At their own work areas, they told and demonstrated how they had overcome the difficulties which they had encountered at the firing grounds, and opinions were exchanged. Thus, previously for training manual tracking operators, the density of active interference was insignificant, while the target's signal had a great amplitude. As a result, the training was carried out under simplified conditions, and the men did not obtain the proper stress. Although everyone knew that it was necesssry to create complicated conditions for the training, there was no standard for comparison. For this reason, each interception controller did this at his own discretion. An inspection of the operators at the firing range showed that the target on certain areas of the route should not be glanced at at all, and then the operators can fully concentrate their attention and confidently carry out the tracking. Naturally, this procedure was immediately taken up in training the operators.

The introduction of a flow method for the integrated training of launching crews in moving the missile from one position to another provided great benefit for raising the combat skills of the launchers. Its essence is that all the crews are concentrated in the region of a ring road. Upon command from the leader of the exercise, one of the crews runs after the transport vehicle for shifting the missile into a combat-ready position. Then the vehicle moves along the ring road, and from the assembly area, the next crew follows the vehicle for shifting the missile to another position without waiting for the return of the first crew, and so forth. Such a method has made it possible to excellently train the launchers for

achieving high speed, and it has significantly reduced the time for conducting the exercise for all the crews.

The experience of the firing grounds has also been studied by the firers. With them a detailed discussion was held about the strategy of the flight in performing the firing, the decisions made and the new demands placed upon their personal training. In other words, the directions were outlined for a further rise in the skills of both the firers as well as the crews led by them.

For us the exercises this year were a check on the correctness of the conclusions drawn and on the promptness achieved in eliminating the shortcomings in the training of the crews. A check was made the readiness and capability of the regiment's podrazdeleniye to repel a dense assault by "enemy" aviation, the stability of command over the combat actions of the podrazdeleniye, the obtaining of radar information from the radar troops and other auxiliary sources, and the readiness of the podrazdeleniye to carry out combat actions under conditions of decentralized command.

The regiment was put on a training alert. Initially the situation was unclear, as the warning network did not provide any data about an "enemy" approach. Great attention had to be paid to our own and the auxiliary means of reconnaissance. And with good reason. They helped out.

The regimental commander gave the target plots for the technical reconnaissance devices. The "enemy" was detected. The command was given to destroy a maximum number of the targets which were endeavoring to pierce the defenses and penetrate deep into the territory of the nation. The "enemy" was making the attack with tactical aviation with the forming of the target in groups in a "column." The groups were stacked. After they were fired upon, high intensity jamming was used against the reconnaissance aids. The sector of the approach on the plan-position indicators was covered with blips. There was one way out to search for the "enemy" autonomously using the missile guidance station. The basic direction of the approach was known, as this was the sector covered with jamming on the plan-position indicator. But the crews, regardless of the interference, fired on one target after another. Here the training obtained on the training firing range and in carrying out firings at the firing grounds came in handy.

The mission of repelling the dense "enemy" attack was successfully carried out at the held exercises. The personnel of the regiment was awarded a certificate of the Commander-In-Chief of the PVO Troops Mar SU P. F. Batitskiy, for successful actions. The best missile troops received commendations.

The communist party teaches us to constantly raise combat skills and readiness and to strengthen discipline and organization. The missile troops of our regiment are fully resolved to more actively join the struggle for carrying out the historic decisions of the 24th CPSU Congress. We will do everything to increase the ranks of masters of missile attacks.

LOYAL TO MILITARY TRADITIONS

By Sr Lt S. Lakomko,
Commander of the Outstanding Launching Platoon

I have had the great honor to begin my officer career in an outstanding antiaircraft missile chast which is rich in military traditions, and together with experienced senior comrades, to carry out the mission of defending the air frontiers of the motherland.

I became particularly aware of this when I entered the room of military glory. The regiment has to its score more than 30 destroyed Nazi invaders. Just look at the portraits of the artiaircraft troops of this regiment who during the difficult years of the Great Patriotic War unfailingly fulfilled their military duty and mercilessly defeated the Nazis, and you think: "The nation has entrusted you with defending the air frontiers, and you also, with your subordinate launchers, should be ready at any minute to engage the enemy and emerge victorious."

My military biography is not a completely conventional one. I began my regular service in an air defense chast which was defending the skies of my home, the capital Moscow. Soon thereafter I became a sergeant and a squad commander. I have always liked army service.

I was discharged from the army. I worked at an aviation plant. It seemed that everything was going well. But a voice inside of me kept saying: "Your place, Stepan, is in uniform, among the missile troops." Possibly, on paper this sounds pompous but this is precisely how I was thinking.

At the military commissariat I requested induction into the regular army. I was accepted, and here I was in a chast. The commander of a launching platoon. To confess honestly, it was not easy at first. For myself, I had not only to refresh much in my memory on special and technical training, I had much to learn anew, but at the same time I had to train my subordinates. I was helped by the experienced instructor officer, Capt A. Baydin. He advised me how to better organize the exercise, how to conduct training, and taught me the exactingness, efficiency and sensitivity needed by a commander. And I am still obliged to him for such so essential qualities for an officer as the ability to carry out a commenced undertaking to the end, not to waste efforts, and to concentrate attention on the main thing.

For example, I began to train the crew in loading the launching unit. The first results were summed up. I could see that in the adjacent platoon the indexes were higher. In truth, we also had overfulfilled the norms, but we could have achieved more. There was not enough teamwork in the actions of the crew members, and each operation was not performed precisely. I began to pay more attention to the step-by-step training method. We trained a little bit. And then a false conceit began to seethe in me because we were behind the indexes of adjacent platoon. And I began to race for seconds

to the detriment of quality. To put it briefly, I had not learned that a stopwatch does not record quality.

In an analysis of one of the training sessions, the battery commander pointed out these shortcomings to me. He explained to what negative consequences such a "procedure" could lead. This was a good lesson for me. And soon thereafter, my subordinates and I had to pass an exam, that is, to carry out firing. In protective equipment against weapons of mass destruction, regardless of the heat, at the firing grounds they acted precisely, with initiative and conviction. They merited a high evaluation.

I will not dwell in detail on the firing range "battles." On the basis of my own experience, I would like to share certain observations and thoughts with young officers.

For two years the launching platoon which I command has had the title of outstanding. A great deal has been achieved; All the men of the crews are class specialists, complete interchangeability has been achieved, we exceed the norms constantly by 15-20 percent, and we can work with equal ease during the day or the night. In my view, the increase in the level of the combat skills of the missile troops has been greatly aided, in particular, by indoctrinating in them a feeling of high personal responsibility for performing their functional obligations. In each soldier and sergeant, I have endeavored to create a unique psychological bent for a creative approach in solving the tasks of combat training, and to evoke in them a desire to carry out the operations on the equipment better today than yesterday.

And what have I done for this? First of all, I have avoided weaknesses and oversimplifications in the training, and I have conducted them each time, as they say, evenly, without jumping over individual phases in the process of developing knowledge and skills. In addition, in following the advice of senior comrades, I have analyzed the actions of each crew member more profoundly and considering individual traits.

In my work I have also encountered the following problem. In my platoon there have been men of various nationalities and with a differing level of general educational preparation. There have been Russians, Ukrainians, Uzbeks, Georgians, Armenians and Azerbaydzhanis... I helped one master Russian and I gave more attention to another in studying checkout equipment and functional diagrams. In a word, time could not be considered. But the result has been all the more pleasing. All the men of my platoon fulfilled the obligation in honor of the 24th CPSU Congress ahead of time, and at recent tactical exercises were presented with a commendation from the senior chief. The outstanding men in training, Sgt Yu. Boyko, Pfc G. Sarkisyan, and Pvt Z. Aliyev can rightly be named among those who by their military labor are properly continuing the glorious military traditions set by the veterans of our chast.

Yes, we are faithful to the military traditions of our fathers and elder brothers. My father was also a frontline antiaircraft soldier and a squad commander. He ended the war on the Odor. If only he could now see how the fire power of our air defense batteries has risen! And all of this is due to the concern of the communist party, the government and the Soviet people.

It is rare, but we still encounter men who allow deviations from the requirements of the military regulations, and who do not work constantly to improve their own military skills. For such persons the communists and Komsomol members make special demands, and these demands are principled and uncompromising.

I recall when I, as the secretary of the battery Komsomol organization, had to talk with Sgt A. Putintsev. And it was on a very important question, his personal discipline. It happened that the junior commander at one time began to make one mistake after another. We had a heart-to-heart talk. I found out that his father had also been on the frontlines and had many decorations. I invited the sergeant to the Lenin room. There we had an attractive stand on "The Military Path of the Chast." On the stand were photographs of the veterans, and in particular, several sergeants. How would you, Comrade Putintsev, justify your behavior, I said, if they were here and asked you to explain it?

After this memorable talk the sergeant changed his attitude toward service.

The platoon which I command during the year of the 24th Congress made definite advances. But the party teaches us, the communists, not to rest on our laurels, but to look ahead, and to seek out and use hidden reserves. Thus we have many questions still to be solved, and even higher indexes to reach in the improvement of military skills. More attention must be paid to indoctrinating and training our immediate assistants, the sergeants.

As yet the mobilizing force of the competition is not sufficiently used in the platoon. And certainly it is a powerful means for strengthening discipline and organization. This has been mentioned in the decree of the CPSU Central Committee "On Further Improving the Organization of the Socialist Competition."

In order to lead his subordinates by a personal example not in words but in deeds, the officer should constantly add to his knowledge and improve his skills. For this reason, I decided to give even more time to tactical and technical training, and to study Marxist-Leninist theory more profoundly.

The personnel of our antiaircraft missile podrazdeleniye is faithful to the military tradiditions of the older generation. The powerful equipment which we operate is always ready for combat.

THE COMMANDER OF THE OUTSTANDING MISSILE REGIMENT

By Lt Col V. Garnov

The commander of the outstanding antiaircraft missile chast, Col Konstantin Platonovich Vakulenko, was looking intensely at the road which, like a forest path, was making its way through the row of trees. Here everything was familiar down to the smallest detail. How many times during all hours of the day had he dashed along it to the command post in order to assume his position in the combat command room. From here he led the subordinate podrazdeleniye, and here he engaged the clever and perfidious "enemy." Who but he, a man from the front lines, would know as well that victory is forged in the intense military labor of the entire troop collective. For him, the thesis "Teach What is Required in War, Without Weaknesses and Oversimplification" has assumed a particular tangible sense, because the experience of the Great Patriotic War has shown that victory always accompanies a well trained, strong-willed and decisive officer, sergeant and soldier.

What was the commander thinking about during those minutes? It would be hard to say. But looking at him, it seems to me that in his thoughts he was already there in the midst of the training battle, in front of the remote indicator. Somewhere many kilometers away, were the training targets, some traveling at scores of thousands of meters, while others were hugging the ground. They had to be engaged in battle and conquered. Not one of them should break through to the objectives defended by the missile troops. And Col Vakulenko was ready to join such combat.

At times you can hear that a commander succeeds by dint of everything, by the level of training and tenacity, and by energy, but sometimes there is not sufficient experience, and due to this, as they say, a "hitch" occurs. This does happen. But our army is strong in the fact that it skilfully brings together the experience and restraint of the veterans with the daring of the youth. Col Vakulenko belongs precisely to the category of those commanders who bit by bit have acquired combat experience, and have creatively interpreted it under the new conditions.

The antiaircraft commander has always been an organizer of battle. But the years have passed. It was a time of revolution in military affairs. At present the air defense troops are equipped with the most modern weapons and combat equipment. Combat actions are characterized by exceptional intensity, speed and fluidity. And all of this has raised the role of the commander in combat and his responsibility a hundred-fold. A difficult burden rests on the soldiers of the regiment commander. The range of his duties is broad and diverse. Each day he must solve scores and hundreds of difficult problems. And here it is important not to be deflected from the proper course in the swirl of current affairs, not to spread oneself too thin, and not to overlook the main thing. But his main concern is to maintain high constant combat readiness, a readiness at any moment to engage the enemy and win a victory.

... The sun-warmed strip of asphalt was speeding by under the wheels of the car, and trees were flashing by. I looked at the commander. He had a somewhat tired and strong-willed face, and an intense look in his eyes. For some reason, the evening before came to mind. I had been in one of the "remote" podrazdeleniye. It was late when I got back. In walking down the staff corridor, I stopped in front of the commander's office. My hand was already on the knob, but I thought that it was late, the work day was long over and the commander was probably already home. But my hand automatically opened the door. A light was burning brightly in the office. Behind a desk sat Konstantin Platonovich. He asked me to sit down, and smiled courteously.

"Well, I was held up a little. I had to look through some papers, and I decided to look through some things from the firing course. Life always poses new problems. If you rely on old knowledge, you fall behind. In our regiment, an idea has appeared. We want to significantly reduce the time required for assuming positions upon the alert. We put our heads together and gave it some thought. The senior chiefs supported us. Now we have set to work. I think the effect will be significant."

Yes, to rely on old knowledge, means to fall behind. This is certainly not a new idea. However, in actuality, and we should not be afraid to admit, we still encounter comrades who forget this truth. Forget it? Apparently, not completely. They remember, but they are not able to concentrate attention on the main thing.

I recall an instance that happened long ago. It was at the firing range. During the firing, serious flaws appeared in the training in one of the chast commanders. He directed combat uncertainly, he gave the combat missions unclearly and was nervous. All of this, naturally, had a negative effect upon the teamwork of the entire crew of the command post. The reason was quickly detected after analyzing how the officer fulfilled his functional duties. It turned out he had given little attention to personal preparation. Little by little he developed a feeling of excessive self-confidence. And as is known, self-confidence which is not reinforced by new knowledge and skills necessary at a given stage is a poor ally for a commander. As they say, this is no way to make the chips fly.

Moreover, his feeling for the new had become blunted. He did not see the advanced methodological devices, and conducted training in the old manner. In a word, he had not understood that at present it is impossible to count on what was good yesterday.

Col Vakulenko is his direct opposite. Without any qualification, it can be said that creativity is always in the forefront in his daily command practices. It is manifested in the application of the provisions of the regulations, orders and other command documents, in conforming to the actually existing situation. And this is important. Certainly, in combat situation are never repeated in all details.

A great deal is given to a commander, but also particular demands are placed on him. In order not to overlook a single point in his work, he should be a good analyst.

I have frequently been present during the service talks of Col Vakulenko with the podrazdeleniye commanders, and the staff officers during analyses of training and exercises. And always I was struck by the logic of his conclusions and instructions, by the deep penetration into the essence being solved, by his ability to critically evaluate the previously used procedures and methods, and on this basis, to find new more effective ways to success.

... The vehicle halted in front of the entrance of the command post. We went into the combat command room. The duty officer Capt N. Loshchakov reported to the colonel on the air situation. On the plotting boards, you could see how the course lines of the detected targets were moving to the right. Konstantin Platonovich again glanced at the screen of the remote indicator, and turned back to us. He pointed to panels located in the right and left corners, and pressed a control button located next to the screen of the VIKO [remote plan position indicator]. A clear inscription flashed on one of the panels. The commander explained:

"This is what our rationalizers have posed. The problem is that before I or the chief of staff can get to the command post, a tense combat situation can develop. It is up to the duty officer to evaluate the situation and make a decision. The panel will help him in this."

In the past I have had the opportunity to watch Col Vakulenko lead combat. First of all, his calmness is prevading. Obviously, somewhere inside himself he experiences emotions, but externally he is calm and collected. And he requires the same from his subordinates. During the work of the combat crew you will not hear a single superfluous word from the specialist. There is no excess noise. In order to achieve this, a special exercise was conducted with the men of the command post crew. At the exercise all the reports and commands were repeated several times, in strictly adhering to the existing instructions and orders. A little later, in the process of one of the training sessions, under a difficult air situation, upon the commander's order, a tape recording was made of the entire course of the training session. The recorded tape was analyzed, and during the analysis, shortcomings were pointed out to all the specialists who had departed from the demands regulating combat work. It was simple but effective. With good reason, during the training exercises and in carrying out firings at the firing range, the command post crew of the chast acted precisely, confidently and merited the high evaluation of the senior chiefs.

Combat can be effectivly led only under the condition that military discipline is unfailingly observed in the duty crews and shifts. In combat duty this means not only the scrupulous execution of instruction and orders, and a readiness to obey superiors. Konstantin Platonovich Vakulenko is firmly confident that this also involves the daring of the leader in making

a responsible decision, and it is initiative based upon a knowledge of the regulations and orders, upon a creative application of them in a specific situation. And in all of this, he is an example for his subordinates.

But a real commander is concerned not only, as they say, about the daily bread, but also thinks widely and considering the future. This is why communist Vakulenko considers the training of his deputies as one of the most important tasks. And he acts absolutely correctly. In combat, it may happen that one of them will have to assume the commander's duties. And combat command is not disturbed, if it is in the hands of an experienced, knowledgeable and strong-willed officer. And Vakulenko solves this problem confidently, with the pedagogical tact inherent to him. And the successes which he has achieved in this matter were mentioned last year in a report of the senior chief at a conference of regimental commanders: "In recent years, three deputies of Col Vakulenko have been promoted to the position of chast commanders and have successfully carried out their duties. Honor and praise for such a commander who has trained another three commanders."

However, this was last year, but what about now...

The duty officer reported to Col Vakulenko that the targets had again changed course and were approaching the regiment's area of operations. Probably, this was not necessary. The commander himself saw the situation on the plotting boards. He summoned a slender major who comparatively recently had become his deputy, and said: "You will lead the 'battle' as I have been 'knocked out'."

The air situation very rapidly became more complicated. The targets changed course and speed. Then one of them dove sharply and approached the podrazdeleniye at a high speed, while another flying close to the ground pitched up. In a word, this was something to think about for a person in whose hands the control of combat was concentrated.

Konstantin Platonovich stood on the sidelines and it seemed that he had not examined the essence of the situation, and was not interested in whether or not the major judged it correctly and quickly or whether he had made a sound decision.

But somewhat later, in the analysis, everyone was convinced that the commander had not missed a single detail. He analyzed in detail the course of the training with the crew members and pointed out shortcomings. The talk with the officers was particularly professional.

It happened that before leaving the command post, I had found myself together with the major who had conducted the training upon Vakulenko's instructions. He began by saying:

"To be frank, I get along well with the commander. I am not so inexperienced. No, I have participated in many combat missile launches, and I have led combat. But the commander helped me a great deal in expanding my tactical knowledge. He taught me how to behave calmly in combat

to act decisively, and to take sound decisions. I think it is very important that he does not interfere on minor matters but trusts you. I remember that soon after assuming my position, I was training with the crew at the command post. Suddenly, there was an alert. A training target was in the air. During this time Col Vakulenko was in one of the podrazdeleniye. But from there, he carefully followed my work, and when a particularly complicated situation arose, as they say, he 'nudged,' and suggested what decision should be made. And at that moment, particularly important for me, he did this tactfully as if by accident. I have gained much that is useful from the commander."

I heard this sincere admission, and for some reason thought that not much time would pass and it would be necesssry to make a correction in the words said by the senior chief at the meeting of the regimental commanders. Col Vakulenko would bring still another of his deputies into the mainstream of command activities.

Combat readiness is at the center of all the commanders concerns. This is a broad and many-sided concept. But the basic source for maintaining it is the men. For this reason, the chast commander has a clear understanding of the training level, the professional qualities, and the psychological character traits of the specialists in the leading missile jobs. And he evaluates all of this not from someone else's words, but by himself, and not on a general level, but specifically and in detail.

For example, new interception controllers have arrived in the regiment, and with each of them he has had a chat and tested their knowledge. He remained unsatisfied. He gave the order of taking exams within one month. And later on, he received them personally.

Once, the following conversstion occurred. Vakulenko summoned a staff officer and inquired to what position they had assigned Lt V. Mozheyko who had just arrived from military school. The officer reported. Konstantin Platonovich thought a little bit, and then said: "Send him to the battalion of Lt Col A. Magrelo as a systems technician. He will gain experience. I feel that later on you will make a good interceptor controller out of him."

The commander did not forget this talk. Several days later when he was at the battalion, he summoned the lieutenant, he had a good talk with him, and explained what future there would be for him in the service. In a word, the young officer received a good trigger impulse, as they say in radar.

The chast commander is called the organizer of combat. But his organizational capabilities are fully manifested only when he is constantly concerned for improving the professional skills of those whom he leads into battle.

I have been shown the certificate which the Commander-In-Chief of the PVO Troops, Mar SU P. F. Batitskiy, presented to the personnel of the regiment for able and enterprising actions during training exercises and for the high combat skills and organization manifested at the same time.

Such a high evaluation is the crowning point of the unstinting military work done by the missile troops. And it was not easy. The "battle" had to be waged under very complex conditions. The "enemy" used the entire arsenal of countermeasures: various antimissile maneuvers, jamming, but not a single target was able to break through the battle formations of the chast because a knowledgeable and long-willed commander unified and directed the efforts of many specialists.

Both the commander himself and his subordinates acted faultlessly on the firing range. The situation was as close as possible to actual combat, but all the missions were performed excellently.

... The first rays of the sun were caressing the tops of the trees when I left the missile garrison. Involuntarily my glance returned to where the command post of the missile troops was carefully concealed from probing eyes. And possibly, at that very moment intense work was underway under the leadership of the remarkable commander, the communist Konstantin Platonovich Vakulenko, a person of great soul and kind heart.

MEETINGS WHICH ARE COMING

By Cols A. Solov'yev and N. Ustyakin

In defining the next tasks of communist construction, the 24th CPSU Congress stressed that the strengthening of the defense capability of the nation is an objective necessity for successfully carrying out these tasks. Under the conditions of the acute class struggle between the two world social systems -- capitalism and socialism -- and the strengthening of the aggressive preparations by the international imperialist reaction, the actually existing danger of war cannot be underestimated. The Congress Resolution states: "The greatest possible rise in the defense might of our motherland, and the indoctrinating of Soviet people in a spirit of high vigilance and constant readiness to defend the great victories of socialism, in the future should remain one of the most important task of the party and the people."[1]

The communist party has shown constant concern for strengthening the Soviet Armed Forces and for maintaining them in a state of high combat readiness. This task is carried out in many important directions. One of them is to improve the party political and ideological indoctrination in the troops. Here the party proceeds from Lenin's instructions that "Where political work is carried out most carefully in the troops..., here there will be no laxness in the army, its order and spirit will be better and there will be more victories." The Program of the CPSU, the decisions of the 24th Party Congress and the Decree of the CPSU Central Committee of 21 January 1967 have defined the specific tasks of communist indoctrination for Soviet military personnel, and have pointed out the ways to achieve them.

A specific feature of communist indoctrination in the army is the fact that it has a military focus. In the soldiers the traits of a new man who is the builder of communism are developed, as well as the morale

1. Materialy XXIV S"ezda KPSS (Materials of the 24th CPSU Congress), p 205.

and military qualities necessary for the armed defender of the motherland. This means that the ideological, political and military indoctrination are closely and organically intertwined, and are interdetermined. Political and military indoctrination have a common ideological basis, Marxism-Leninism. Political and military indoctrination also have a common goal, that is, to indoctrinate a loyal, strong, able and aware defender of the socialist fatherland, a soldier who is both patriot and internationalist.

But in the united and inseparable process of political and military indoctrination, the leading role belongs to political indoctrination. Its specific feature is that it is directed primarily at raising the political awareness of the men, and at developing in them a scientific ideology, infinite loyalty to the motherland and the ideals of communism, high political vigilance and class hate for the imperialists. Political indoctrination is aimed at arming Soviet military personnel with the ideas of Marxism-Leninism, as well as a profound understanding of the policy of the CPSU and Soviet government, and the tasks confronting the Armed Forces, as well as those confronting the specific podrazdeleniye and chast. The Resolution of the 24th CPSU Congress stressed that "The development of a Marxist-Leninist ideology in the workers, high ideological and political qualities and the norms of communist morality in the future will remain the central task of ideological work for the party organizations."[2]

But the role of military indoctrination is also great. It is focused primarily on developing in the military personnel high morale and military qualities making it possible for them to carry out their military duty. As is stated in the CPSU Program, all Soviet military personnel should be ready to give all their energy, and if need be, their life, for defending the socialist motherland. It is an issue of indoctrinating in the men such qualities as loyalty to the oath, unfailing execution of orders and instructions from commanders and superiors, valor and tenacity, daring and decisiveness, vigilance and military skill, combat activeness and the ability to operate strictly according to the regulations under any conditions, a feeling of personal responsibility for maintaining high combat readiness and the greatest possible strengthening of military discipline. The specific tasks of military indoctrination are outlined in the military oath and the military regulations. For this reason, explaining the oath and the regulations and developing a conscientious attitude among the soldiers, sergeants and officers toward fulfilling their requirements in essence comprise the basic content of military indoctrination.

Under present conditions, the role and significance of military indoctrination have significantly increased. This is caused by a whole series of circumstances. As is known, our military development is inseparable from general Soviet developing. The processes occurring in the life of the Soviet people inevitably influence the Armed Forces. As our

2. Materialy XXIV S"ezda KPSS, p 205.

society advances toward communism, the role of conscientious discipline and organization grows, and the necessity arises of indoctrinating higher labor activeness among the Soviet people. Proceeding from this, the 24th CPSU Congress has pointed out: "The most important component of ideological political work is to indoctrinate a communist attitude toward labor and public property, to develop the creative activeness of the workers, and to strengthen conscious discipline and organization."[3] In terms of the Armed Forces, this party demand means indoctrinating the Soviet military personnel with a communist attitude toward military labor, a love and considerate attitude toward weapons and military materiel, a strengthening of military discipline, and the indoctrination of high responsibility in each serviceman for carrying out his service duty. All of this is an important task of political and military indoctrination.

The rise in the role of military indoctrination is directly linked to the complicating of military affairs, and to the fundamental changes in weapons and military technology, in the organization of the troops and the operational methods. The complex of these and other circumstances make unprecedently high demands upon Soviet military personnel and upon their morale and military qualities. For example, at present not simply strong military discipline is needed, but rather discipline of the greatest efficiency, unquestioned obedience, and the most organized actions. There must be strength and courage which approaches self-immolation, and the ability to endure enormous stress on moral and physical forces. The new nuclear weapons not only do not reduce but rather raise the role of man in war. Precisely man readies and uses weapons in combat, and the effective application of weapons and military materiel depends upon his ability, professional skill, strength and self-possession. It must also be pointed out that under modern conditions, there has been a marked rise in the dependency of military readiness upon the level of military discipline and, as a whole, upon the state of military order in the chast and podrazdeleniye. From this follows the urgent necessity to strengthen the work of developing high morale and military qualities in our personnel in the process of military indoctrination and in the course of all military and political training. And it is an issue first of all of indoctrinating an aware discipline in them, and raising the responsibility for strictly carrying out the requirements of the military oath and the military regulations.

The interests of a more effective solution to this problem made it necessary to revise and make substantial changes and amendments to the combined arms regulations. In their content, they are focused on raising the demands for efficiency, organization and military order in the chast and podrazdeleniye of all the types of Armed Forces. These changes and amendments have been reflected in the Disciplinary Regulations the Interior Service Regulations, as well as in the Regulations for Garrison and Guard Services. Due to the particular significance of these regulations in the development of the Armed Forces and for strengthening

3. Materialy XXIV S"ezda KPSS, p 205.

combat readiness, upon the initiative of the CPSU Central Committe, they were approved by ukases of the Presidium of the USSR Supreme Soviet. This again emphasized how important it is to improve military indoctrination of the personnel.

The necessity of further improving military indoctrination has also been caused by the shortening of military service. At present a soldier must be trained for defending the motherland in a significantly more restricted time, and he must be helped in more rapidly developing the high morale and military qualities, and in mastering his military specialty.

All our military life substantiates that where unflagging attention is given to military indoctrination, here the successes are more significant both in maintaining military readiness, in combat training, and in strengthening military discipline. Here is one the many examples.

The podrazdeleniye where officer O. Mordvinov is the political worker, was standing combat duty, like the others. Along with the entire complex work with the personnel, here great attention is paid to military indoctrination. For this they use both the basic forms of political training such as political exercises, Marxist-Leninist training, as well as mass agitation and cultural educational work. The personnel constantly hears explanations of the Marxist-Leninist understanding of wars, their character and origin, the teachings of our party concerning the armed defense of the socialist fatherland, the content and significance of the military oath, Soviet military science, the decisions of the communist party and the Soviet government, and the 24th CPSU Congress on the questions of strengthening the military might of the Soviet state. Each soldier, sergeant and officer is made aware of the tasks which have been posed for the troops by USSR Minister of Defense and the Commander-In-Chief of the PVO Troops. The men constantly received explanations about the content and requirements of the military regulations, and here stress is put on the fact that the regulations are immutable laws of the Soviet Armed Forces.

The commander takes a most active part in all this work. In relying in his activities on the communist and Komsomol members, he skilfully directs the creative efforts of the men, he encourages and supports their initiative, and develops in them a truly communist attitude toward military labor. The commander frequently gives lectures and reports to the men, and talks with them sincerely and easily. He is always simple in his dealings with subordinates, he is concerned for them, and helps them to correctly judge every step. In a word, this collective is a close-knit family where an atmosphere of creative enthusiasm and great organization reign. And it is no surprise that at the recent final inspection, this podrazdeleniye received the highest evaluation for military and political training.

There are many examples of the skillful use of military indoctrination for developing high morale and military qualities in the personnel. But, in visiting the chast, it can be noticed that recently in some places less attention has been paid to these questions. Individual commanders and political workers clearly do not consider in their work the increased

significance of military indoctrination, and they do not use all its very rich opportunities for strengthening military discipline and raising combat readiness. This becomes particularly noticeable when one becomes familiar with the content of forms of ideological and indoctrinational work with the personnel.

Thus, in the podrazdeleniye where we visited, lectures, reports and talks on the subjects of military discipline have disappeared from the plans of the speaker groups, and of the party and Komsomol bureaus. For example, in the agitation and the propaganda collective of which officer V. Zalitov is a member, for the half year they planned around 100 various subjects and among them there was not a single one dealing with Lenin's military legacy, the military oath and military regulations, military duty and honor and so forth.

Not enough use is made of the basic forms of political training for propagandizing the regulations and for strengthening military discipline. No matter how strange it might seem, during the seminar exercises and in lectures, rarely is any sharp criticism voiced of specific individuals who have shown a lack of discipline, moral laxness, or who have violated proper relationships between military personnel. A decisive struggle is not waged against such unhealthy phenonena as a lax attitude toward service and drunkenness. Several soldiers, even after studying special subjects on military indoctrination, do not know the requirements of the military oath, military discipline and their own regulation duties. For example, in the group of Capt A. Dvoryadkin, individual students were not able to say anything about the requirements of the military oath. The lectures and seminar studies were divorced from the duty and tasks which the soldiers were carrying out. In giving grades to the students, they did not always take into account their conduct and attitude toward service. For example, Pvts V. Kryuk and N. Konovalov had violated discipline and had reprimands, however this did not have any effect on the grades they received. They were even considered outstanding men...

But who gives the talks and holds the lectures? In the chast where we visited, this was chiefly the platoon and battery commanders and the sergeants. But where were the senior officers who have more experience and a broader viewpoint? Some of them rarely visited the barracks, and are unwilling to participate in evening meetings and such. They do not give lectures. Why? Some of them say that this is a matter for immediate superiors. Others profess innocence, saying that this had not come to mind and the party bureau had not suggested it.

But, as they say, nature does not like a vacuum. The vacuum is filled. But by what? Sometimes, by a lecture like the one given by Sr Lt F. Pomomarchuk. This lecture was boring, vapid, with an abundance of factual inaccuracies and mistakes. Time was taken away from the men, but nothing was given back in return. After such a lecture, the soldiers lost any desire to attend other ones.

It also happens that men are assigned to give lectures or talks about military duty and discipline when they have no moral right to do this. At one time, Sr Lt N. Razumnyy was severely reprimanded for flagrant violations of discipline. But still, he was assigned to prepare a lecture about discipline. It is not difficult to imagine just what sort of effect this measure would have!

The indoctrination of the personnel is a complicated and difficult thing. It requires from the commanders and political workers, and from all the officers, a high level of culture, knowledge and pedagogical tact. These qualities are possessed primarily by the experienced officers. But, unfortunately, they sometimes remain on the sidelines. And this leads to a situation where the most important questions of military indoctrination drop out of the lecture, mass agitation and cultural-educational work.

This can be said, for example, about the subjects devoted to strengthening one-man command and to raising the authority of the commanders. Talks on this subject are a great rarity. But certainly it need not be proven that one-man command is a most important Leninist principle for organizing our army. Embodied in the troop regulations, it permeates all the life and activities of the troops. Without its strict observance, there is no military discipline, and successes in training and indoctrinating the personnel were impossible.

Under present conditions, one-man command assumes even greater significance. At present, as never before, it is essential to have strong will from a commander, he must be able to firmly and decisively lead the chast and podrazdeleniye, while all the personnel must be ready and able to carry out the orders and instructions of superiors precisely, quickly and with initiative. For this reason life itself has posed the question of strengthening one-man leadership, as well as further raising the authority of the commanders.

At the same time, in becoming acquainted with the work of the agitation and propaganda collective, of which officer Zalitov is a member, in its activist group, we did not discover lectures or reports on this subject. They were not found either in the subject plan of the speaker group. And if they do not exist in the plan, they will not exist in life. At the same time there is a great need for such lectures and talks. Here, not all of the personnel as yet have understood the essence of one-man command, and they do not always carry out the instructions of the superiors unfailingly and out of a deep inner conviction. And not all of the officers are able to correctly use the rights given them, and at times commit deviations from proper relationships with subordinates.

The situation is somewhat better in instilling in the men a fondness for the assigned equipment, in indoctrinating them with the constant demand to improve their technical knowledge and military skill, as well as in propagandizing military traditions. In the podrazdeleniye, they hold evening meetings for the military glory of fathers, and meetings with veterans. They tell who at present is adding to the glory of the older generation.

One of us recalls another podrazdeleniye and another talk with the men. The conversation was about the heroes who had served in the chast. One of them had been entered in perpetuity on the rolls of the first squadron. "And who of you can tell the feat which made the name of the hero immortal?" we asked. There was silence among the men. But here were new soldiers as well as men of an earlier induction. But none of them could relate the feat of the hero. And in the Lenin room, there was a library with literature about the hero, as well as a handsome stand with a description of his feat.

Thus, it appears that it takes more than assembling of books and making a stand. There must also be a narration of the hero's feat, and this narration should effect not only the memory of the men, but also their hearts. There must be an emotional effect and a meeting with senior comrades and veterans. Unfortunately, this podrazdeleniye limited itself more to the external features. In this manner they impoverished such an effective form of propagandizing military traditions as organizing meetings with veterans and participants in the Great Patriotic War.

At present, in the troops a great deal is said and thought about how, in a short period of time, to create a unified military collective with its own "social microclimate" and creative atmosphere from such diverse fellows who have arrived in the podrazdeleniye. And this is understandable. Any military success depends upon the joint close-knit efforts of all the personnel in the podrazdeleniye.

A word about the collective the forms of work with which were discussed at the 24th CPSU Congress. "The Party Central Committee," states the Report of the CPSU Central Committee to the 24th Congress, "has taken measures to create a moral atmosphere in our society which would help to establish in all levels of social life, in labor and domestic life, a respectful and considerate attitude toward man, honesty, exactingness for oneself and others, trust combined with strict responsibility, and a spirit of true comradeship."

Precisely this atmosphere could also exist in a military collective. The relationships of the personnel in it should excel in particular mutual understanding, solidarity, true comradeship in a word, fully meet the requirements of the regulations. The new soldiers particularly need great attention. It would seem that this would be obvious, but it still must be kept in mind.

Here is a quite recent example. New men had arrived in one of the podrazdeleniye. They were welcomed, supplied with equipment and housed. Service began. For the new soldiers, there was much that was new. And then some of the experienced soldiers began to ridicule them. However, none of the superiors halted this or reprimanded the ridiculers. Among the men, there developed a coldness and alienation which grew into dislike. The atmosphere in the collective clearly became unhealthy. Only then did the commander and the political worker wake up. But precious time had been lost. Stricter measures had to be undertaken for establishing correct relationships in the collective.

At the outset, it is very important that a good adviser and true friend be near a new man. The new soldier, like no one else, requires a patient explanation of the procedures and rules of military service. As a rule, all the misfortunes for the new men occur from an ignorance of the regulations. More than anyone else they need a positive example. Such examples, in effecting their awareness, instill a confidence in the new men that they will be able to do likewise.

And how important it is for their indoctrination to promptly note and commend the first success! If a man has done more and better today than yesterday, if there has been a success in something this cannot help but be pointed out. The commendation without fail causes the man to endeavor to do everything even better. This is a simple truth. But officer V. Dvoryanskiy should be reminded of this. During combat work, his subordinates Pvts V. Moiseyev, A. Gerasimenko and A. Stepanov had fulfilled their difficult duties excellently, and had manifested initiative and outstanding ability in detecting air targets. The senior chief cited them as an example for others. But the commander did not note their efforts. And this was an insult to the men. For them this had been, in essence, their first serious test in battle.

A collective has many problems. There is the formation of public opinion, holding personnel meetings, and the relationships between the new soldiers and the men from an earlier induction. In many podrazdeleniye, these problems are waiting for their solution. Certainly, this determines greatly whether or not the collective will be a close-knit military family or relationships will be poor. This inevitably will tell on the military capabilities of the podrazdeleniye.

In recent years, in the troops a great deal has been done for the psychological strengthening of the troops. Psychological training has become an organic part of the training process. At present, it is rare to find an exercise in military training which is carried out without "inputs" which help to develop tenacity, decisiveness, daring, and resourcefulness in the men. The elements of psychological training for the men are also present in the work on the equipment, and in standing combat duty... The commanders and political workers devote a great deal of attention to psychological training. The questions of its further improvement are also posed for discussion at the party meetings and the sessions of the party bureaus. And all of this is quite correct. But we feel that the questions of morale and psychological training to some degree have overshadowed the questions of military indoctrination, although their relationship and unity are obvious. Many facts show that this is the case. In the podrazdeleniye which have been discussed here, the questions of military indoctrination for a long time have not been discussed by the communists, and at seminars with the leaders of political exercises and the secretaries of the party organizations. In the podrazdeleniye where Maj V. Svetlitskiy is the political worker, for example, they hold a Young Officer's Day. This is a good initiative. But for some reason, on such days there are no lectures or exercises on the questions related to the practices of military indoctrination.

All that has been stated shows that the questions of military indoc-doctrination merit more attention from the commanders, political workers, party and Komsomol organizations. The men, with pleasure and great interest, listen to lectures and talks about military honor and duty, about the nature of a military feat, about friendship and military comradeship, and about military fraternity and military ability... They are always impatient to meet with veterans, heroes of battles and labor, and experienced commanders and chiefs... Must they be made to wait!

HONORARY TITLES FOR AVIATORS

In 1971, the aviation of the PVO Troops gained a new detachment of honored military pilots of the USSR. By the Ukase of the Presidium of the USSR Supreme Soviet, this honorary title was awarded to officers A. S. Baranov, Yu. A. Bykov, L. V. Galagan, A. I. Groshev, I. G. Davydov, R. A. Karpachevskiy, V. P. Lakatosh, O. N. Levin, M. P. Lupinos, V. G. Lyashenko, T. S. Malyutin, and O. I. Sytnik; the title of "Honored Military Navigator of the USSR" was awarded to Lt Col Kh. G. Itkinov.

Each of these officers has great experience in flying, and thousands of hours in the air. During the years of the Great Patriotic War, the title of Hero of the Soviet Union was awarded to Cols Anatoliy Ivanovich Groshev and Vladimir Pavlovich Lakatosh for military feats. In serving with the flyers of air defense aviation, these officers ably pass on their military know-how.

In possessing outstanding flying skills, each of the coterie of honored military pilots of the USSR has trained many true air fighters.

At a reception in the Kremlin, the Deputy Chairman of the Presidium of the USSR Supreme Soviet, A. P. Lyashko, in presenting the diplomas for awarding the honorary titles and chest emblems, warmly congratulated the honored men, and wished them new successes for the good of our motherland.

THE METHODOLOGICAL COUNCIL RECOMMENDS

By Lt Col V. Kholodul'kin

The effective use of training time is aided by the scientifically sound organization of the training process, and by the bold and constant introduction of the most progressive forms and methods for training and indoctrinating the personnel. The solution to these questions depends primarily upon the erudition and organizational qualities of the commanders, the staff officers and the political bodies, and upon their ability to rely on the party and Komsomol organizations. The chast methodological councils can also do a great deal in this regard.

In many chast, the methodological councils have proven to be reliable assistants of the commanders in organizing the training process. By their effective and fruitful work, they do a great deal for raising the methodological and pedagogical skill of the officers and sergeants, for improving the effectiveness of the exercises and training in the teams, and achieving teamwork among the podrazdeleniye in a short period of time.

The methodological councils have the job of being constantly concerned with studying, generalizing and introducing the new features which are created in the process of training and indoctrinating the personnel. There should be support and dissemination of the practices of the methodological councils which regularly, as necessary, create plans for the preparation and conducting of tactical exercises and training sessions, which work out scientifically sound and practically tested recommendations to eliminate shortcomings detected in the process of inspections or daily training, and which organize measures which help to successfully solve the problems of military and political training.

The members of the methodological council which is headed by Lt Col Kucheryan act in precisely this manner. This council works rhythmically, purposefully, in going deeply into the state of the affairs in the podrazdeleniye. This makes it possible for the council to have a positive influence upon the quality of personnel training. Here work plans for the methodological council are compiled ahead of time considering those tasks which are to be carried out by the missile troops. The methodological council holds sessions not haphazardly, but rather systematically, under a

situation of high professional activity. And this is no accident. Before discussing one or another question, the council members carry out scrupulous analytical work on the spot. They investigate the positive features in the practical work of the best methodologists, and discovered characteristic shortcomings. Of course, this is the only way to proceed. At present, when the length of active service for the soldiers and sergeants has been reduced, and the new soldiers must be trained in a short period of time, the methodological councils must solve the posed questions creatively.

This is well understood by officer Kucheryan and the other members of the methodological council. For example, there was a time when the plotting board operators of the command post [KP] were trained over a rather long period of time. Maj Tomarov who had for a long time worked at the KP had asserted that it was impossible in any way to train plotting board operators for independent duty in a shorter time.

But then, a member of the methodological council, one of the most experienced specialists, officer Lysenko arrived at the KP. He carefully observed the actions of the plotting board operators, he studied the method of training them, and concluded that the plotting board operators could be trained for independent work at least three or four times more rapidly. What had to be done for this? In the first place, to change the procedure by which the specialists were taught to record in a mirror image on the plotting board. Secondly, to reorganize the daily training sessions. Previously, the plotting board operators developed their skills only when either the operators or other specialists read off data for them.

Officer Lysenko proposed using a tape recorder for this purpose. They tried it out with good results. Now the plotting board operators are trained for independent work significantly more rapidly.

The chast commander has commented with satisfaction on the initiative shown in the work of Lt Col Kucheryan and the other members of the methodological council. At one time, in the chast the idea arose of developing extensive work to train back-up men. This was in keeping with the spirit of the times. But the problem was there was no special program for training the back-up men, and for this reason, in each podrazdeleniye these specialists were trained according to the principle of "every man on his own." In order to exclude discrepancies in the training of the back-up men, the chast commander proposed that the members of the methodological council work out a special training program considering the specific features of service in the podrazdeleniye.

Soon thereafter, such a program was created, and after this an hourly schedule appeared for each studied subject as well as a schedule of the exercises. Moreover, under the leadership of officer Kucheryan, the council members worked out a methodological aid for training the back-up men and a number of specific recommendations for using it. All of this played its role. Suffice it to say that at present, many drivers of transport and loader vehicles, telephone operators and diesel specialists have not only learned their own specialty well, but have also mastered one or even several related specialties.

Specialist first class, communist O. Prost skilfully conducts exercises with subordinates. Great experience and excellent knowledge of the equipment make it possible for him to use every minute of training time with maximum effectiveness. In the photo: experienced instructor officer C. Prost conducts an exercise with soldiers.

Photo By K. Kulichenko

There was a time when certain members felt that their duty was to investigate only the organization of the training process. "It is not our job to be concerned with the questions of special training," they said. "This is the duty of the staff officers." Now the picture is different. At present many soldiers have learned to confidently hit the targets traveling at low altitudes. They act skilfully and decisively when they must "work" with pilots in a single combat zone. And all of this is due to the fact that the members of the methodological council have given great attention to the questions of tactical and special training.

The activities of the methodological council are diverse. If there is training for developing teamwork of the crews, if there is repair work being carried out, if the men are developing skills in the combined arms disciplines, or if they are standing combat duty -- all of this should be in the field of vision of the members of the methodological council. It is their duty to note new and useful things in the training of the troops, and see to it that these new things are used in practice.

The Report of the CPSU Central Committee to the 24th Party Congress stated that extensive work has been done to renew the content of the training process in our schools and institutions of higher learning. This is being carried out in accord with the requirements of scientific and technical progress and the general level of modern scientific knowledge. What is the situation in improving the training process under our army conditions? Has something interesting and instructive appeared here? Yes, it has. And here an important role has been played by the members of the methodological councils, men who, as a rule, are enterprising and creative. They see their primary duty in actively propagandizing the most effective personnel training methods.

This problem has been successfully solved by the members of the methodological council of which officer Gurenovich is a member. At one time, the chast commander pointed out to the members of the methodclogical council that certain crews had lessened their efforts in training, and had begun to give less attention to developing teamwork. The members of the methodological council, having attended the exercises, saw for themselves that during the training, a complicated air situation was not created, and naturally the specialists were not under proper physical and psychological stress.

Capt Nikolay Sen' is a specialist first class. Having begun his service as a soldier in one of the podrazdeleniye, sometime later he returned to it as an officer. The officer carefully passes on his rich practical know-how to the men. In the photo: Capt N. Sen' during a regular training session. On the right, Sgt Artemov.

Photo by K. Kulichenko

All of these questions were carefully discussed at a session of the methodological council. Soon thereafter, on the commander's desk lay well thought-out proposals on eliminating the discovered shortcomings. These recommendations had been worked out on the basis of carefully studying the training and indoctrination process in the best crews, and in thorough talks with many officers and sergeants. And a short time later, the leader of the training sessions with the men of the KP crew reported that the situation had fundamentally changed. The operators, the plotting board operators and other specialists were ready to carry out any mission under the most complicated conditions.

The methodological council discussed here includes officers Shapkin, Dotsenko, Gurenovich and other able instructors and experienced specialists. Their high technical and tactical training, as well as their profound knowledge of the principles of military pedagogics and psychology make it possible to creatively approach the solution of the triune task entrusted to the methodological council, that is, to find, to test out and to introduce. Practice shows that a methodological council works successfully in the event that it is made up of able officers who truly love their job. Even if there are only a few of them, they should work with energy, and manifest initiative and truly scientific conscientiousness in studying advanced experience and in working out the corresponding practical recommendations.

Unfortunately, one still encounters phenomena of a different sort. The methodological council where officer Petrov is the secretary during the last training year included a number of experienced officers owever, the council for six months did not carry out even one measure to raise the effectiveness of the exercises and training, it did not create a single methodological study plan, and lessened the work with the officers and sergeants in the area of training and indoctrinating the new soldiers. Here they held instructor-methodological exercises and sergeant and junior officer days unsystematically.

Of course, the superior chiefs could not overlook this, and immediate measures were taken to revive the work of the methodological council. Things seemed to be looking up. In any event, during the second half of the year, the methodological council met regularly. It met five times in just one month. But for what reason? In order to approve the outlined plans for conducting one or another exercise. There was little benefit from such sessions.

Incidentally, a word about the outlines which the methodological council approved. Externally they are reminiscent of the methodological study programs or teaching aids. Each contains around 30 typed pages, around 10 photographs, diagrams and blue prints. For example, take the outlined plan for the subject "Radar Reconnaissance Under Conditions of Jamming and the Use of Weapons of Mass destruction by the Enemy." There is no need to mention the importance of this subject. Any commander would willingly receive such an outline under the condition that it thoroughly and clearly states advice and recommendations on how to train, for example, specialists in detecting targets which use jamming.

But the problem is that, as they say, there is not a trace of interpretive advice and recommendations in the designated outline. This "outline" is excerpts from various instructions and orders which at times have no direct bearing on the basic subject.

Certainly, it took no great effort to "grub up" excerpts from various regulations or instructions. This was a waste of time,and there was absolutely no benefit from it. This has nothing in common with creativity, and the methodological council should have condemned such a method of "compiling" outlines, and not praise those who spoil a vital cause with a lot of paper shuffling. But here, in endeavor ng to give the appearance of working, they have followed a path of the senseless approval of useless compilations. Hence, in reading the decisions of the methodological councils, one sometimes encounters such "pearls" as: "... the chast methodological council orders... the commander to strictly observe the sequence of working out the missions..." or "... the chief of the chemical service is to train the KP crews under the conditions where the enemy has used weapons of mass destruction..." It turns out that these officers are obliged to do what they should be concerned with in their job, and what has been defined with maximum clarity by the requirements of the regulations, instructions and orders. At the same time, in the decisions of certain methodological councils you will not find clear scientifically sound recommendations on how one or another exercise can better be organized, supported and carried out.

Such shortcomings occur, apparently, because sometimes the methodological council is made up of officers who, although having sound experience in working with men, at times do not know how to work on the council or what must be done so that its work provides a maximum return in the podrazdeleniye, and have an influence on raising combat readiness. On the other hand, individual commanders and political workers sometimes give little attention to the methodological councils, and are not interested why this body is operating only on paper. At times this explains the discrepancy in determining the direction of the council's work, in the number of meetings, the number of council members, and so forth.

It can be argued that each chast has its own specific features, and respectively a council differs from another in terms of its structure, in terms of the amount of work, and so forth. Of course, this is right. But certainly there are respective documents which clearly regulate the activities of the methodological council, and their requirements are obligatory for everyone. The task of the commanders and political bodies is to revitalize the work of the methodological councils, and to make them true centers in elaborating scientifically sound recommendations. These recommendations would make it possible, in turn, to train able specialists and reliable defenders of the fatherland in a short period of time.

It is essential above all to constantly develop and support the creative spark in the work of the methodological councils, and to bring the activities of this body closer to the troops. In many chast, it has

become a rule that the members of the methodological council travel to the advanced podrazdeleniye, they carefully study the acquired experience, and in common work out proposals on how this experience can be more rapidly introduced in all the crews. Such practices merit support and dissemination.

Another effective measure is to invite to the sessions of the methodological council the creators of advanced experience such as the best instructor commanders, and the best trained specialists who systematically achieve significant successes in mastering the military equipment and improv- the training process. They should be given an opportunity to speak also in other podrazdeleniye and crews. The reports of the members of the methodological council on their work and its prospects also are of great indoctrinational significance. It is above all the members of the methodological councils who determine whether or not they are desired guests in the podrazdeleniye and whether or not each meeting of theirs with the troops enriches them with advanced experience and stimulates creative thought.

The activities of the methodological councils are diverse. But does this mean to some degree they take over for the commander? Of course not. The methodological council is a consultative body. It carries out its good deeds under the direct control and leadership of the commander who, along with his staff, outlines the long-range plan for the work of the methodological council and the main directions of its activities. As for the superior staffs, it would be a good thing, in our view, to assemble the leaders of the methodological councils from time to time for exchanging experience and for creatively discussing the problems of training and indoctrination which concern the officers and sergeants of the podrazdeleniye.

Not much time remains until the beginning of the training year. Inspired by the historic decisions of the 24th CPSU Congress, the air defense troops are endeavoring in the course of the training, to honorably carry out the honorable and responsible missions entrusted to them of defending the air frontiers of the motherland. Here the members of the methodological councils can and should provide them with all-possible aid. This will play a major role in raising combat readiness and in improving the forms and methods for training and indoctrinating the personnel.

THE COMMANDER SUMS UP

By Maj N. Rybakin

The 24th CPSU Congress paid most serious attention to the necessity to a more profound, truly scientific and constant analysis of the state of affairs in all areas of communist construction, as well as the need for a critical approach in evaluating the work of one or another collective and individual workers. This instruction applies fully to the activities of the personnel of our Armed Forces.

The commanders, political workers, staff workers, the party and Komsomol organizations and all the personnel of the military chast and podrazdeleniye carry out important and diverse missions in the area of raising military readiness, mastering equipment and weapons, and in strengthening discipline and proper order. It should be stressed that these missions, with the rapid development of the modern means of armed combat, are constantly growing more complex. The interests of raising combat readiness require a constant improvement in the work style of the army personnel in organizing the process of military and political training of the personnel. For further advancement, it is essential to develop the practically-proven forms and methods of work, to seek out new forms and methods, to discover unused reserves, and to delve deeply into the reasons for shortcomings in order to exclude their appearance in the future, that is, there must be all-round analysis of the state of affairs in the chast and podrazdeleniye, and a clear understanding of the results of the work done over a certain period of time.

The summing up of the results of military and political training as well as careful analyses of carrying out combat training missions have become an indispensable law in the practical work of commanders on all levels. Precisely this helps to further improve the combat training and indoctrination process and to better the organizational activities of the commanders. Understandably the summing up of results becomes effective only with a creative more party-like approach to this matter. Let us demonstrate this from the actual example of the work done by the commander of the advanced podrazdeleniye, Lt Col A. Kandelaki.

Some people feel that the main thing is to collect information on how many training sessions were conducted from the deputies and service chiefs two or three days before the date set for summing up the results, then to calculate the indexes, the number of infractions of military discipline, and so forth. But this commander has a different approach. Preparations for summing up the results for the next period begin with the last minute of summing up the preceding results. And the successes in his work substantiate the correctness of this rule.

Of course, in no instance can it be said that the commander for the entire month thinks solely about the forthcoming summing up of the results. But the daily activities of Lt Col A. Kandelaki and his entries in his notebook show that each day he tries to analyze the results of what has been achieved, and to discover possible shortcomings in the training and indoctrination of subordinates, and the reasons for them. The endeavor to penetrate the essence of the facts and events which have occurred during the day or during the carrying out of any specific mission makes it possible for the officer, over a certain period of time, let us say one month, to discover a trend toward the development of positive or negative phenomena, and to take measures to eliminate the reasons for shortcomings or support and develop useful processes.

Here are two entries from the notebook of Lt Col A. Kandelaki. The first of them: "The squad has assumed the obligation to make effective use of the time of independent studies. To pay attention to the supply of literature, visual aids and consultations by skilled specialists." This entry was made when the officer was present at a meeting in the squad of Sgt V. Kugatov during which time socialist obligations were assumed.

Having organized the material support for the exercises, the commander sometime afterwards analyzed the results of the growth of the theoretical and technical knowledge of the squad's soldiers. At the next summing up of results, he dwelt in more detail on the question of technical training and gave the officers specific instruction to improve it.

A second entry of another sort. "Studied the organization of the competition among officers. Lts S. Ganin and V. Fleginskiy do not have individual obligations..." This comment ended with a large exclamation point. Obviously, Kandelaki had noticed not only the lieutenants, but also the work with all the new officers. He had repeatedly talked with each of them, and established their mood, concerns and desires. During the next summing up of the results, all of this served as the basis for one of the sections of the report. It suggested the most effective ways for the development of a commander, it gave specific recommendations, and outlined a number of measures at raising the military, methodological and pedagogical skills of officers who had recently completed school. From the experience of Lt N. Danilov, the officers were shown what possibilities are to be found in a well organized competition and carefully elaborated obligations assumed not only by their subordinates but also by the officers themselves.

Master of military skills Maj Pavel Pavlovich Rogatovskiy has proven to be an active rationalizer. During his six years in the chast, 26 of his rationalization proposals have been introduced. In the photo: Maj P. Rogatovskiy tests out the Syurpriz [Surprise] teaching machine which he invented.

Photo by K. Subbotko

In preparing to sum up the results, Lt Col A. Kandelaki always endeavors to find a basic subject for the forthcoming talk. Although the report is organized according to a system defined by the documents, that is, by the obligatory sections, its core is the most important direction for the given period in the work of providing high combat readiness.

In the given instance, having been angered by the fact of the absence of personal obligations for the two officers, Lt Col A. Kandelaki concluded that the basic theme of the forthcoming summing up of results should be the organization of the socialist competition and its influence on raising combat readiness.

It must be pointed out that a section devoted to the competition is found in each final report, but this time the commander decided to analyze this important area of work in more detail. The necessity of such a talk, in the officer's opinion, arose because at that time it was already possible to sum up certain results of fulfilling the obligations assumed by the personnel for the training period. However, sufficient time remained until the end of the period in order to increase the effectiveness of the competition, that is, some of the obligations could be revised toward an increase, and analysis could be made of the reasons for the lag and the situation corrected in individual areas, and the subordinate officers could again be shown, from the examples of their own activities, the importance of observing the Leninist principles of organizing the competition.

The report of the commander was organized precisely on the basis of Lenin's demand for comparability of the competition's results. Here not the external aspect was shown, not just the results of carrying out the obligations by the competitors, but also the circumstances of their fulfillment, and the ability of one or another commander to utilize the motivating forces at work during the given period to mobilize the personnel for a high quality of military and political training.

For example, in comparing the results of the work done by the subordinate officers I. Krylov and N. Benes'ko who, per se, were almost even, Lt Col A. Kandelaki pointed out that the results of both could have been better if they had studied and exchanged each other's experience.

Thus, officer Krylov makes more effective use of the patriotic upsurge among the personnel as caused by the decisions of the 24th CPSU Congress. In the collective assigned to him, the activeness and militancy of the party organization have constantly risen, the party's influence on the men has grown, and as a result of this, the efficiency of the competition has increased.

Officer N. Benes'ko has improved the results of combat training chiefly by increasing exactingness, and by establishing clear control over the training of the personnel.

Lt Col A. Kandelaki in summing up the results convincingly proved that the results of raising combat readiness and improving the skills of the personnel could have been higher where more effective use was made of the various forms and methods of indoctrination and organizational work, in combining all of this with great exactingness.

Thus, on the basis of analyzing the particular phenomena, the commander selects and synthesizes, he reasons out the general patterns in the process of indoctrinating and training the personnel, and passes on this knowledge to the subordinate officers.

We should reemphasize that no matter what the basic subject of the report (questions of technical training, military discipline, morale, combat and psychological training, and so forth) in summing up the results, the report is always permeated above all with a concern for raising combat readiness. Lt Col A. Kandelaki skilfully links the analysis of the state of affairs in any area of work done by his subordinates with the main thing, that is, preparing the personnel to conduct military operations under the most complicated conditions of modern combat. This is a manifestation of the commander's maturity and the value of his actions.

A characteristic feature of the final reports which Lt Col A. Kandelaki gives is their critical nature. Particularly strict criticism is directed at officers who have not set a personal example in carrying out their regulation duties, or who have allowed shortcomings in leading their subordinates.

Here is a good place to take up the emotional effect of the commander's speech. At present, many people already understand that the summing up of results is not only the listing of facts and figures, not merely information about the completed and uncompleted work. This is also an indoctrinational measure of great strength. In actuality, the words of approval about the activities of one officer and strict criticism of another, in being stated in the presence of the officer personnel, affect not only the conscience but also the feelings of those present. This makes

the obtained information more profound, it makes it more long-lasting, and significantly raises the level of mental activities.

However, in fully understanding the importance of the emotional affect, not everybody has sufficient skills in creating it. Unfortunately, commanders can still be encountered who reduce the entire emotional affect to a "good drubbing" which borders on coarseness. Yes, a "drubbing" also affects the feelings of a person, and very strongly, but almost without exception in a negative way, and has nothing in common with pedagogics, proper personal relationships or party principles in evaluating negative facts and phenomena.

An emotional effect, in our view, is achieved by a skillful use of the diversity and richness of Russian, by the ability to clearly analyze facts, to handle them and to compare them. This is aided by clear logic, conviction and a thorough knowledge of the situation. Not a harsh tone or shouting is needed, but rather a depth of understanding and a clarity of thought.

It is particularly important to be well aware of the circumstances of the analyzed phenomenon, and the particular character traits of the individual who is being criticized. And, of course, the emotional effect should be firmly reinforced with practical recommendations and by good advice which would help not only the person being criticized, but also all those present to clearly understand the reasons for the committed mistakes, oversight or misdeed. Such an approach does not cause insult, but rather forces each person to reflect and to objectively evaluate his capabilities.

This is precisely how Lt Col A. Kandelaki endeavors to act in front of the officers. Having received information about one or another misdeed or a negative phenomenon in the process of military and political training, he always carefully analyzes the circumstances and causes, and thinks out measures to prevent shortcomings.

Once in summing up the results, an officer was sitting next to me, and his name was mentioned by the lieutenant colonel in relationship to service infractions. The lieutenant stood up, and blushed strongly; obviously, he was embarrassed. After the lieutenant was given permission to be seated, he, without raising his glance to his comrades, carefully listened to the report, and made some comments in his notebook. Incidentally, the commander not only accused the officer of infractions, but also gave advice on how to avoid them in the future.

Soon thereafter I was present during the summing up of the weekly results which this same lieutenant had conducted with the personnel of his platoon. In analyzing the misdeeds of one of his soldiers, he clearly used the method of his own commander, having been able to cause a feeling of shame in the subordinate in front of his comrades. The officer examined the reasons for the misdeed, and gave some professional advice to the soldiers, while to the sergeants he gave precise instruction the fulfillment of which would prevent a repetition of similar instances.

In each summing up of results conducted by Lt Col Kandelaki, the state of party political work is thoroughly analyzed. The commander concentrates chief attention on its effectiveness. In speaking, for example, about political training, he does not restrict himself to the quantitative aspect of fulfilling the plan, but shows how the obtained knowledge influences a rise in military readiness, and a strengthening of military discipline, as well as improves organization and raises the responsibility of the personnel.

It should be said that at one time, the basic emphasis in summing up the results was put on a critical analysis of the situation. But life has shown that this is a somewhat one-sided approach to an important measure. The communists at a party meeting raised the idea that the summing up of results provides an opportunity to generalize and disseminate advanced experience. These comments were considered by the commander. And, as can be seen from what has been stated above, he, in criticizing negative phenomena, endeavors to widely show all the positive features which have been achieved under analogous conditions. Moreover, in his report, a separate place has begun to be given to propagandizing advanced methods of training and indoctrination. Thus, from the example of officer I. Krylov, the commander showed the ability to see clear prospects in work, to correctly rely on the activists, and to utilize the strength of party influence.

From all that has been stated, the obvious conclusion can be drawn that the final report is based upon the commander's thorough knowledge of the situation in the collective which he leads. This means that he and his assistants are constantly where the personnel are working on the tasks of military and political training, and that he has a direct effect upon the course of training. And, of course, those shortcomings which are thoroughly analyzed in summing up the results are discovered and eliminated in the process of daily training. In the commander's report, they are merely generalized, analyzed, and thoroughly evaluated so that the other officers do not commit them in their work.

The USSR Minister of Defense, Mar SU A. A. Grechko, in speaking at the 24th CPSU Congress, said: "... At present we cannot stand still. A sign of our times is the rapid processes of development, renovation and improvement in all spheres of human activity, including in military affairs. This confronts us with constantly new and more complicated tasks." The advanced commanders of the PVO Troops including Lt Col A. Kandelaki, follow this thesis in their daily work. This helps the chast and podrazdelenlye assigned to them to successfully carry out the missions of raising combat readiness.

THE DEGREE OF BLAME AND THE EFFECTIVE MEASURES

By Lt Col V. Belyayev

The aircraft was flying at a low altitude in the aerial acrobatics region. Sr Lt V. Sergeyev was performing one figure after another, as ordered in the flight mission. Left turn, right turn and then a barrel roll... The altimeter, and as well the VH recorder showed the assigned altitude. It was low and the ground was quite near. There was a good view of the houses in the settlement clustered around the fork in the road. If the speed were not so great, you also could have seen people, who turning away from their customary concerns, probably looked with interest at the silver arrow flashing by.

The settlement flashed by over the plane. Again a turn... The pilot compared the instrument reading with the figure which had been set as the maximally low altitude for this zone. There were no discrepancies. "It could have been set lower. The ground is still far off... About 20 meters -- nothing so difficult ... We could make it a little lower..." And although the desire to skim over the very treetops and the rooftops was checked by an awareness that this was an infraction, the controls were moved forward.

From whence comes this desire to change the strictly prescribed flight conditions? Why, even being well aware that this cannot be done, the pilot commits the infraction without any circumstances compelling this?

Each such instance can have its reasons. There is the desire to test one's "strength of nerves" or push things to the limit, that is, to test out one's forces at the limit of the capabilities of the aircraft and the man. Sometimes, it must be admitted, this can also be the desire to demonstrate the "might" of the aircraft and the "capabilities" of the pilot for those who have remained on the ground.

There can be many motives, but the reason, as is shown by the analysis of prerequisites for flight accidents due to violations of flight discipline, is always one, irresponsibility. Indoctrinating high personal responsibility in the aviators for flight safety and for the proper execution of a mission is a complicated and labor-consuming job. But for this,

the commanders, the political workers and the party organizations have a sound and practically tested arsenal of the most diverse forms and methods of work. It would be possible to give many examples where effective and constant activities to provide high responsibility for combat readiness have made it possible for the aviation chast and podrazdeleniye to successfully carry out the missions of flight training not only without accidents and emergencies, but also without flagrant preconditions for them. However, instances similar to the one which described, unfortunately, as yet are not an exception.

... Thus, St Lt Sergeyev arbitrarily reduced an already low flight altitude. The drop, in truth, was brief, but sufficient so that the pilot, as they say, was several centimeters away from catastrophy. The flight operation officer wrote in his log: "Precondition for flight accidents." It was an outstanding case. The commander halted the flights and assembled the entire personnel.

Sr Lt Sergeyev admitted that this had not been an error in piloting and not a failure of the equipment, but rather a conscious, in essence, change in the flight mission. The commander reprimanded the pilot severely, grounded him from further flights, and the flight shift continued its work.

On the following day, in the log for analyzing accident preconditions, a new entry appeared. In the columns "Guilty Party," "Cause," and "Measures Taken," there was respectively: "Sr Lt Sergeyev," "Lack of discipline," and "Grounded." In the regular report on preconditions for accidents it was reported that the pilot had been "disciplined," and "the case was analyzed with the personnel."

It would seem that everything had been done correctly. The reason for the precondition of an accident had been established, the circumstances were clarified, the guilty party was punished and the "case analyzed." The procedure for analyzing the reaction to the precondition had formally been observed. But what about the essence? Had everything been done correctly if one considers that correctly means the most effectively?

In the given case, the effectiveness of the commander's work and its "expected final result" are measured by the excluding or, conversely, by the possibility of repeating similar negative phenonena. But the "expectation of a result," that is, the checking out of the correctness of the conclusions and the measures taken in the course of flight work is a matter which involves risk. And here, in essence, there is only one way out. By logical reasoning based upon the available facts and the materials of objective control, the air commander must again and again analyze everything so as to be certain that his decisions are the correct ones.

Undoubtedly this is complicated work. Certainly any mistake by flight personnel, particularly a precondition for an accident, a failure to make an interception and other objectively and subjectively possible shortcomings in flight duty in a majority of instances are caused by a whole

number of factors, and some of them at times are impossible to detect by the "naked" eye, since they are concealed deep in various phenomena and are complexly intertwined with other more elementary and customary ones. But if the commander is not merely a participant in the process of flight training, but rather controls this process and influences it, using his own flight experience and knowledge of life, as well as methodological, pedagogical and psychological knowledge, and if he endeavors to achieve a higher efficiency in his work related to indoctrinating, training and preparing the personnel to carry out combat actions under the conditions of a modern war, he must be able to consciously penetrate all, even the most profound phenomena, and by logical thinking bring out the most concealed causes.

In analyzing the error made by Sr Lt Sergeyev, this was not achieved. Having determined that a lack of discipline by the pilot and his irresponsibility had been the basic cause of the error, the commander did not feel it necessary, and possibly could not go more deeply into the circumstances, but rather stop with this seemingly correct formula.

The second error obviously was that grounding was for officer Sergeyev the only "disciplinary punishment" for the most flagrant violation of flight discipline.

Yes, grounding for any reasons: due to mistakes in piloting techniques, violation of the preflight conditions, a committed error and even circumstances not depending upon the pilot, is a most unpleasant event causing strong psychological experiences. Ordinarily this involves a feeling of shame in front of one's comrades, commander and even family; there are the fears of falling behind in mastering the program, in carrying out the personal flight training plan, and so forth. And this occurs, regardless of the fact that grounding, as a rule, is caused by the necessity of analyzing what had happened, and, if need be, making up the gaps in training, and to resume the sequence which had been violated for certain causes in the method of pilot training.

In actuality, sometimes a commander, in grounding a pilot for a certain infraction, correctly feels that this measures (a measure and not a penalty!) is sufficient for making the officer aware of his mistake and to feel the blame. This depends upon the objectivity of evaluating the degree of pilot fault, the character of the mistake committed, the correctness of determining the level of his training and individual qualities, as well as his attitude toward service. Grounding only conditionally can be considered a punishment, and it is at least poor pedagogics to substitute it for a disciplinary penalty which is necessary in certain instances.

And this is precisely what happened with the case of Sr Lt Sergeyev. After grounding, sooner or later he would return to his aircraft, even without additional testing. Certainly check flights and tests do not provide for developing discipline in the air. In essence, the pilot remained unpunished for the most flagrant violation of flight discipline, and this greatly reduced the effectiveness of the remaining measures.

Undoubtedly, the officer would remember this case. But for how long? He still considered himself an outstanding pilot. But perhaps he might think that the last time he was simply "caught," and next time he would have to be "cleverer"?

In the given instance, grounding was a necessary measure, but for analyzing this instance in more detail, they should not have limited themselves to the set formula of "lack of discipline," but found the roots of its occurrence.

If the commander, in following up immediately, had given more concern to the real causes, not to the mistake itself but rather to the "ill-fated lack of discipline," considering that a whole number of causes for a majority of such phenomena do not lie on the surface, then he would have detected many details and fact shedding light on the flight error, and which would have been important for his further work in preventing similar instances.

It turned out that Sr Lt Sergeyev had altered the flight mission before, and had precisely reduced the established flight altitude. The VH recordings from a whole series of preceding flights substantiated this in decoding. These showed the full picture for the flight commander. And, in essence, just one step was needed in analyzing the error to understand the true reason for the occurrence of a lack of discipline which could have led to an incorrectable error. Of course, first certain efforts had to be made in order to get on the right track. But on the other hand there would have been a great change in the evaluation of the events, in the conclusions, and thus, in the measures based on this undesirable lesson and directed at improving the indoctrination and training of the personnel. All of them would have had a more profound, correct and effective character.

It makes no sense to repeat and say that in the given instance the pilot, one way or another, merited a strict punishment. The degree of his guilt does not change. But the fact that the flight commander was also one of the guilty parties in the error due to his negligent attitude toward supervising the flight training of a subordinate presumes a much larger amount of work in preventing such phenomena. Clearly, here it is essential to strengthen exactingness, to raise methodological training and supervision, and to improve indoctrinational work with the flight commanders.

The flight commander is the basic figure in training and indoctrinating the pilots. He is the immediate commander and the first instructor. It would be difficult to exaggerate the role of this category of commander in developing the qualities of an air fighter in the personnel. At the same time, this is the first step of command. A former pilot becomes a flight commander without any special methodological, pedagogical and often even instructional training. Moreover, in becoming a commander of one's former comrades and fellow officers, not every officer is able to show proper exactingness and demandingness. For precisely this reason, in addition to the related instance, one could give many cases where rank-and-file pilots make all sorts of mistakes, failures and preconditions for

accidents due to gaps in their training which can be attributed to the flight commanders.

Take the following instance. Capt V. Bykov committed several potential causes of flight accidents related to landing. They were all recorded by the flight control officer and entered in the accounting log. But in the flight lists and respectively in the flight booklet of the officer there were excellent evaluations precisely for these flights.

The flight commander, Capt N. Manovskiy, explained such a discrepancy, to put it mildly, by his busyness and by the fact that he had signed these flight lists for several days all at once.

An excellent evaluation for a potential accident. What sort of effective measure is this! Incidentally, a few words about the evaluation for fulfilling the flight missions. Rarely one encounters a three in a flight record book, let alone a two. For some commanders, formalism in evaluating the fulfillment of flight assignments has become traditional. This applies particularly to the evaluations given by the commander in the flight lists of his deputies.

In truth, here a stipulation must be made. Ordinarily, errors, and particularly potential causes of accidents, to one degree or another are analyzed, the guilty parties, again to one degree or another (usually less) are punished, but the evaluation, according to the statement of the same Capt Manovskiy, does not play any role. Supposedly, this is the formal aspect of the matter and the main thing is the reaction to the violation.

Thus, it turns out that even if the degree of guilt has been correctly determined, then the "disciplinary penalty" (the essence of which we have already spoken of above) is considered to be the effective action, and obviously we must take up the "reaction" to this penalty.

The reaction frequently is restricted to the fact that the negative phenomenon is noted and recorded. And this, of course, is still not the very measure of effect on the causes for the occurrence of this phenomenon. It also happens that only the punishment, be it disciplinary, party or Komsomol, exclusively is considered as the measure of action. However, the reprimand, as is shown by the case of officer Sergeyev is an important part but only a component one in an involved complex to eliminate the causes of negative phenomena. Apparently there is no necessity to prove that the measures of action are necessary above all for eliminating the factors giving rise to shortcomings in flying. For this reason, the very process for determining the degree of blame for one or another official, and this is above all an accurate elucidation of the true causes for the occurrence of shortcomings, is important for taking correct measures of action. All of this leads one to the fact that it is essential to more profoundly understand the essence of the very complicated undesirable phenomena which arise in flight practices, even if they are expressed in a conventional form such a potential cause, an error, a short, inaccurate aiming, aborted target interception, and so forth.

In line with this, we can return again to the first case. The error committed by Sr Lt Sergeyev on the most inadmissible basis in aviation, that is, a lack of discipline, in its subsequent and correct investigation and in determining the guilty parties and the degree of their blame, should lead to discovering shortcomings in the training and indoctrination of flight commanders.

Clearly, the measures of action, relating primarily to the direct guilty parties of the error, that is, the pilot and his flight commander, will have a positive effect on the entire course of training and indoctrination of the personnel, including the leader. These measures, along with strict penalties, also presuppose other forms of indoctrination and in the given instance a reorganization of methodological work with the flight commanders. In other variations, depending upon the essence of the shortcoming disclosed, this can be a whole series of additional measures, training sessions, check flights, and so forth.

One of the very important and effective measures to eliminate and exclude the repetition of undesirable phenomena and facts in flying is the skillful use of the force of the party's influence. The creation of a situation of intolerance for shortcomings and instances of lack of discipline as well as the creation of conditions for criticism and self-criticism in the party organization play an important role and provide substantial help to the commander, both in determining the degree of blame for one or another communist, as well as in working out and carrying out measures to improve the quality of indoctrination and training for the personnel. Incidentally, the norms of party life not only allow but presuppose, in addition to specific penalties, other measures of party, that is to say, indoctrinational action, depending upon the degree of blame.

However, it is essential to consider the specific features in the activities of the party organization, the work of which, under army conditions, is directed by the commander and his deputy for political affairs. The problem is that much in the party organization's evaluation of one or another event or fact depends upon the commander's opinion. For this reason, his evaluation should be objective, profound and complete. This makes it possible for the party organization to correctly determine the most effective measure of action for the communists.

For example, what happened when Sr Lt Sergeyev, after his infraction of discipline during a flight, was invited to a session of the party bureau? When the question arose of declaring a strict party reprimand for him, a majority of the bureau members, basically pilots, did not agree with this. They felt that this flagrant but sole (!) infraction by the pilot did not merit such a strict reprimand. Of course, if the members of the bureau by this time had known that Sr Lt Sergeyev had repeatedly and flagrantly violated flight discipline, their opinion would have been different. Again, everything is interrelated, that is, both the degree of blame and, in the given instance, the party reprimand as a measure of action.

The following case comes to mind. Officer V. Matsepon, a pilot and war veteran, strictly punished his wingman because the latter, after returning from a mission, in flying over the takeoff area, was a few seconds early in taking his aircraft out of formation. Initially everyone was amazed by the severity of the penalty. The commmander explained why he had taken such a decision. Precisely in such a situation on the front he had lost his wingman and almost perished himself. The wingman, a young pilot, in a dogfight, having spotted a single enemy fighter on the sidelines, decided to shoot it down. The separated pair was immediately attacked. V. Matsepon who was experienced was able to escape from the attack, but the wingman was shot down.

It became clear that the severity of the reprimand for such a seemingly insignificant pilot error in flying over the takeoff area was conditioned by far-reaching consequences. For this reason, the degree of blame for the wingman who had made a turn a second too soon grew into the worst violation, the abandoning of the commander on the battlefield.

A strict reprimand and convincing words from the commander remain long in the mind of the pilot. And possibly, the correct determining of the degree of blame and the measure of action will determine the victory of the group in which this pilot is flying in real air combat. For certainly precisely combat requires exceptional organization, discipline and high skill both from the pilot and from the commander. All of this is acquired in daily training. Success in combat depends upon how correctly the complicated process of pilot training and indoctrination is organized.

MISSILE FIRING COMPETITION

Answers to Problems

Problem No 13. The ranges for launching the first ZURS [surface-to-air guided missile] in a series which will guarantee that the ZURS will encounter the target in the strike zone considering the vertical maneuver of the target is 10.2-22.5 kilometers.

Problem No 14. The permissible overloads of an air target carrying out the maneuver "right turn" is 2.72.

Problem No 15. The amount of the missile's miss equals 580 meters.

NOT TO FLINCH IN ANY SITUATION

By Lt Col A. Shaposhnikov, Military Pilot 1st Class
and Maj Med Serv A. Kostyuk, Candidate
of Medical Sciences

In his article "Combat Imposes Demands..." Maj Ye. Khal'chitskiy touched upon an important problem in the psychological training of air defense personnel during the period of peacetime combat training. We would like to take up in somewhat greater detail certain questions related to the psychological training of air defense interceptor pilots in the process of flight training.

The indoctrination of pilots is a complicated process requiring great labor from the instructors, commanders, political workers, physicians and engineers. Psychological training is an important element. It represents a system of training and indoctrinational actions aimed at developing in the flight personnel high morale and military qualities, a readiness for combat, and a desire to make maximum effective use of the combat capacilities of the equipment and weapons.

The effectiveness of psychological training for the flight personnel is closely linked with vocational guidance and the reasons for choosing a profession.

Interest in flying and a desire to improve skills and acquire the theoretical knowledge related to flying activities are viewed by psychologists as a proclivity for flying. The degree of the proclivity is greatly determined by vocational guidance.

A positive proclivity in many instances obviates qualities which are unfavorable for flying, and helps to develop the necessary ones. Thus, one young man was classified as unfit for flying by a medical commission because of an instability of arterial pressure. However, the desire to become a fighter pilot was so strong in this man that for the last two years, upon advice of physicians, he regularly participated in sports and strengthened his cardiovascular system. He achieved his dream and was admitted to a school, and is now a military pilot first class and excels in excellent health.

A proclivity for flying should also be indoctrinated and strengthened in experienced pilots. This is particularly needed by those pilots who, for some reason, have lost confidence in their own ability and in the reliability of the equipment.

In the process of psychological training, indoctrination of a proclivity for flying must be carried out on a strictly individual basis. Such traits as anxiety, an inclination for fixation and exaggeration of negative aspects frequently lie at the basis of excessive caution and the constant expectation of failure. These character traits at times lead to fear and a rejection of flying. The commanders and political workers should help the pilots who possess such negative qualities to overcome them.

There have been instances when a negative attitude toward a type of aircraft and at times a lessening of interest in flying have been caused by the incorrect pedagogical actions of the commanders. In one of the podrazdeleniye for example, in learning to operate a new type of aircraft, certain flight commanders and instructors spoke so much about a possible swerving of the aircraft in the landing run and even a failure that the young pilots in the air were thinking about landing and the landing run more than about carrying out the mission. Some pilots became afraid of flying. They began to make mistakes more frequently, and some of them, having lost their confidence in their own capabilities and the reliability of the equipment, decided to leave flying. And only the interference by an experienced senior commander discovered the true causes for the failures of the pilots. The causes were eliminated, having reorganized morale and psychological training. Special exercises, conferences and demonstration procedural flights were carried out with the flight personnel. The pilots became confident of the aircraft, they gained assuredness of their own capabilities, and successfully learned to fly the new equipment. This example shows that the breaking in of new aircraft should be preceded not only by the study of special questions, but also by instilling confidence in the aircraft and in the capabilities and knowledge of the flight personnel.

Psychological training cannot be carried out without considering the indoctrination of proper flying practices and flying discipline, as well as the conscious observance of the requirements and regulations which control flying, in addition to observing firm military order at the airfield and in the air. Where flying discipline is high, the pilots have a conscientious attitude toward service, and they act correctly both in the course of preparing for the flights and during their execution.

According to our observations, certain young pilots have an incorrect notion of discipline. In their mind, discipline kills independence and initiative. They are inclined to be impatient, to not observe proper sequence in training, and to skip from one subject to another. Some of them feel that the main thing in flying is resourcefulness and initiative. The observance of regulations and the accurate following of instructions, in their opinion, are of subordinate significance. Such erroneous views are lost with the accumulation of experience and with a rise in flying

a respect appears for instructions which condense the experience of many generations of flyers. This occurs more rapidly the more thoroughly the senior comrades, commanders and political workers explain to them the significance of the flying laws and the more strictly their observance is demanded.

In the course of psychological training, it is very important to develop psychological strength in the pilots, that is, the ability to maintain coolheadedness, a clarity of mind and quickness of reaction in dangerous situations, and the ability to suppress fear. This is achieved by making certain that flight training is carried out under conditions which are as close as possible to actual combat, where the pilots learn what is required for victory in combat.

Any oversimplification in training impedes the development of psychological strength and the ability to handle fear. It can be said without exaggeration that a feeling of fear is inherent to anyone, but the main thing is to be able to conquer it. The degree of danger does not always correspond to the degree of fear. With a sudden or unexpected danger, when the essence of the complication which has occurred in the flight is not understood or when a clear plan of action is absent in relationship to the complicating factor, the development of asthenic fear, confusion and incorrect actions is possible. An example of this would be a case with one of the first-class pilots, Capt K. Leont'yev.

In making a flight along a fixed route for designating targets and involving a landing on another airfield, he did not check out the correctness of his outbound route from the readings of the radar equipment. Sometime later, he made a visual sighting from light markers on the shore. Shortly thereafter, the shoreline ended, although according to the calculations he should have kept in sight of it for another 20 minutes. Having looked at his compass, the pilot noticed that it readings were 90° off from the set one. The captain immediately imagined that the compass had broken down on the aircraft, and reported this to the home airfield. But due to his confusion, he did not carry out the instructions of the command post to return, but continued to fly along the route with frequent course changes, until he accidentally came upon a radar beacon and determined his position. Due to the complication in the flight, he landed back at his own airfield on his emergency fuel reserve.

There can be no doubt that flying is a particular type of human activity. But a great mistake is made by those persons who link only negative emotions and nervous and mental stress with the flying profession. In recent years, running through many scientific and popular articles and pamphlets as well as in lectures and talks has been the fixed notion that flying is dangerous, that it requires stress, endurance, courage, and so forth. Here completely overlooked is the fact that flying is most of all related to positive emotions which stimulate the vital forces of the body and help to develop and mobilize the best qualities of an individual. Such emotions are a love of flying, the elements of a sporting interest in

flying, a love of the motherland and an awareness that you are benefitting the country.

On the level of psychological training, indoctrination of mental strength of the pilots cannot be separated from their physical development. With the help of physical exercises, such essential qualities for a pilot as daring, quick reactions and the capability of spatial orientation are developed. However, it must be said directly that some chiefs of physical training have little understanding of particular features of flying, as well as the physiology and psychology of this type of activity. This does not allow them to participate on a planned basis in developing flying skills. At present, the aviation chast require a particular type of physical training leader who should, in addition to special skills, possess a greater amount of medical and psychological knowledge.

Flights at maximally low altitudes, at the actual ceiling and over the sea require special psychological training. They involve significant nervous and mental stress. Only pilots who possess great tenacity, self-possession and high flying skills are capable of successfully carrying out such a flight. If interceptions at medium altitudes cause a nervous and mental stress characterized by a pulse rate of 25-35 beats per minute and an increase of arterial pressure by 10-15 mm. Hg. over the initial, interceptions at low altitudes cause significantly more express psychophysiological shifts; the pulse reaches 140-160 beats per minute, while arterial pressure rises to 170-175/100-110 mm. Hg. The psychological training for these types of flights consists in developing mental strength, confidence in one's capabilities and in forming sound habits.

An underestimation of psychological training for particular types of flight causes uncertainty of the pilots and mistaken actions. Thus, military pilot first-class Capt N. Ignat'yev was transferred from the middle zone of the nation to a coastal region for further duty. In his first flights over the sea, particularly in making low-altitude interceptions, he felt unconfident, with his actions becoming uncertain and his attention lessened. The officer began to make mistakes which previously he had not made. The chast commander, together with the squadron commander and the physician, having analyzed the pilot's actions, concluded that psychologically he had not been trained for flights over water. The training of Capt Ignat'yev was planned in such a manner as to accelerate the reorganization of his psychological stereotype to the new type of flight. Subsequently he successfully mastered all types of flights over water.

Psychological training for flights under difficult weather conditions during the day and at night also shows certain particular features. Here the pilots must be taught to suppress their own sensations related to a change in the aircraft's position in the air, and to instill confidence in the instrument readings. During instrument flights, the pilot should be able to perform slow rolls in the air, relying on the readings of the piloting and navigation instruments, and in no instance being distracted with the search for ground markers or the natural horizon line.

On the question of illusions and psychological training for them, one of the pilots related that during a flight in clouds, he involuntarily was distracted from instrument flying. Suddenly he had a clear sensation that the aircraft was flying upside down. The pilot glanced feverishly at the instruments, and many malfunctions which could have caused the unusual position of the aircraft flashed through his mind. And although he had heard repeatedly about illusions before this, it did not occur to him that this might have happened. By a rapid roll he tried to bring the aircraft into a horizontal position in accord with his sensations. As a result of this, the aircraft was in fact rolled over, and began to nose down with a rapid increase in speed.

At this moment the pilot understood that he had been the captive of an illusion. The procedure to be followed with a loss of spatial orientation in clouds and the occurrence of illusions flashed into his mind. From the readings of the turn-and-sideslip indicator, he brought the aircraft out of the bank, and then reduced the angle of pitch using the gyro-horizon. Having flown for several minutes under horizontal flight conditions, the pilot calmed down, broke out on top of the clouds, went out of his airfield's DPRM [outer marker beacon], and made a normal landing. In analyzing the flight in the squadron, he frankly narrated the reason for his failure to fulfill the flight mission. The described case was carefully analyzed with all the chast personnel.

In carrying out flight missions in the air, so-called special cases at times do occur, such as: a failure of systems or units of the aircraft, the engine, radio or other equipment, piloting and navigation instruments, and so forth. And although during flight preparations everything possible is done to exclude such cases, the pilots must be psychologically ready for them as well. Practice shows that even in experienced pilots, a sudden failure can cause a loss of self-possession, confusion, delayed and sometimes even incorrect actions. With the development of a special case, the pilot must first of all establish the nature and possible causes of the failure, imagine its possible consequences, recall the procedure of actions, and quickly and accurately carry them out. In the plan for the psychological training of flight personnel, in terms of special cases, it is essential to raise flight skills in every possible way, to improve skills, broaden theoretical knowledge and develop confidence in one's capabilities.

As is known, the pilot's confidence in the safe outcome of a flight depends upon his knowledge of the equipment being operated and upon his actions in special cases. No one doubts this truth. Nevertheless, due to a number of factors, pilots at times undertake flights without having sufficiently studied the aircraft and the particular features of its piloting, and without having reinforced the skills which were developed in preceding flights. Ill-fated busyness, lack of principles and a desire to "use" the weather and so forth are the reason for these violations. Insufficient training gives rise to a lack of confidence, tension, and mistakes, and contributes to the occurrence of special cases.

We have given several different examples and have taken up certain questions which are also different in their significance in the area of pilot psychological training in order to show that the psychology of a pilot's personality, due to many particular features of this profession, is extremely diverse, and that the formation of psychological strength, that is, the inner readiness for combat, among flight personnel requires significant knowledge in the area of psychology and pedagogics on behalf of the aviation commanders and political workers. Moreover, the development of high morale and psychological qualities requires the same precise procedure as organizing the process of direct flight training.

This work has particular features in having the pilot execute not only different types of programs (the development of piloting techniques, the mastery of night flights, and so forth), but also various exercises. The preparations for intercepting at maximum range differ significantly from preparations for group maneuvering combat, and so forth. And precisely with the advancement of the pilot in the program and with the complicating of the combat missions, the commander must also increase the psychological stress.

Only by the constant and planned increasing of this stress is it possible to arrive at the desired result, that is, the development of a real air fighter who will fly through a radioactive cloud, land on a contaminated airfield, who can get ready and take off under the shells, missiles and napalm of attacking enemy aviation, and who will skilfully and intrepidly attack and destroy the enemy. For this reason, in peacetime, each commander-indoctrinator and political worker is obliged to be constantly concerned with the psychological training of air fighters.

HIGH RELIABILITY FOR EQUIPMENT

By Maj Gen Art V. Malomuzh

The decisions of the 24th CPSU Congress state that the greatest possible rise in the defense might of our motherland is one of the most important tasks for the party and the people. This means that the personnel of the Soviet Armed Forces are obliged to do everything so that the equipment assigned to them under any conditions operates reliably and is used with maximum effectiveness. This comprises one of the important tasks being carried out by the soldiers, sergeants and officers in their daily activities.

The dependability of equipment, be it an airplane, a missile or radar station, is determined not only by technical reliability achieved in the process of its designing and production, but also by the level of organizing its operation in the troops, and by how well the servicing personnel have studied the weapons assigned to them. Profound knowledge of the equipment among the personnel is the chief element influencing the reliability of military equipment. In actuality, without this it is impossible to organize the operation of the equipment and weapons to have high quality adjustment and repair carried out on it, the transporting and storage of weapons, and creative searches for ways to raise the reliability of the units and assemblies of radar stations and other types of military equipment.

Life itself convinces us of this. Equipment works dependably only in the hands of soldiers who have studied it thoroughly. In understanding this well, the commanders, political workers, party and Komsomol organizations of the chast and podrazdeleniye constantly and steadfastly see to it that the technical training of each man be on a level of the present-day requirements. For achieving this purpose, various forms of training are used in the missile and radar troops, and primarily, training sessions directly on the equipment, using operating stands, in addition to group classroom exercises in specially equipped technical classrooms. All of this makes it possible to train personnel in sufficiently short periods of time to work independently on the equipment, and to instill in them sound habits of technical servicing. Moreover, in the radar troops, special attention is paid to training the chiefs of the radar stations and shifts, the squad commanders, the senior operators, the electricians and other men of the combat crews.

And as always, in this important undertaking, the tone is set by our advanced officers. As an example, take the station chief officer N. Gusel'nikov. He has not only thoroughly studied the equipment assigned to him, and has a considerate and careful attitude toward it, but also indoctrinates this love in his subordinates. And hence it is not surprising that at his station there are no failures due to the fault of the personnel. For profound knowledge and outstanding work, Gusel'nikov has been awarded the title of master of radar troops, and his subordinate crew has rightfully won the title of outstanding.

In the interest of raising the skills of the personnel, in addition to planned exercises, in the advanced podrazdeleniye, wide use is made of annually held competitions for the best operator. All the soldiers and sergeants prepare carefully for them. Independently using the descriptions and instructions, they throughly study the schematic and functional diagrams, they acquire the skills of analyzing their state, they learn how to seek out the causes of malfunctions and to eliminate them, and on the equipment work out the procedures for tuning it and preparing it for combat use. In the contests, winners are announced for the knowledge of equipment, for the ability to service it, and to effectively find and eliminate malfunctions. These winners are given prizes. Thus, in X radar chast, Pfc S. Koyalenko was the winner. He served as an example for all the men of his crew. The equipment assigned to the soldier worked reliably, and if a malfunction at any time arose, it was quickly eliminated.

A great deal is being done in the fighter aviation chast, and here the command, party and Komsomol organizations give great attention to improving the technical knowledge of flight personnel. In particular, the subjects of the exercises are so designed that the pilot not only receives training in skilfull actions during complicated flight conditions, but also is taught to effectively analyze the operation of the engine and various aircraft equipment. This is greatly aided by flight analyses using the materials of objective control recording equipment such as the KZA [audiomonitoring device] and SARPP [prob. automatic flight control system], training in the aircraft cockpit during the period of preliminary preparations, and the involvement of flight personnel in carrying out jobs on the aircraft during the nonflying days.

An increase in the knowledge level of junior aviation specialists is achieved by holding daily training sessions on the aviation equipment in the work process under the direct supervision of technicians or the chiefs of service groups. Training sessions are also held for the technical personnel before carrying out the most complicated operations on the aircraft.

One of the important factors which provides high operational reliability of the equipment is high quality execution of repairs on it. The engineers and technicians of the chast have done a great deal to improve the organization of this work and better the methods for carrying it out. In the antiaircraft missile troops, for example, they have introduced rigid planning, centralized control, and every day network schedules and cyclograms

are used. When necessary, for providing help in carrying out repairs, highly skilled specialists from the weapons services of the traveling repair brigades and laboratories are sent to the podrazdeleniye.

Frequently difficult weather conditions in the areas of our podrazdeleniye require that additional measures be taken to safeguard and protect the equipment against icing and corrosion. For this purpose, in carrying out repair work, the personnel takes particular care to inspect the mechanical assemblies, the antenna systems, the waterproofing of the cables, and seeks out ways to improve the equipment inspection methods. As is known, increased moisture and significant precipitation can lead to the accumulation of water in individual areas of antenna systems, and consequently, to their failure. For the purpose of preventing this undesirable phenomenon, a group of engineers has examined the possibility of creating additional drainage openings, and has worked out specific proposals, the introduction of which has made it possible to significantly raise the dependable operation of the radar weapons.

In the chast and podrazdeleniye, for many years, competitions have been held for the best organization of repair work. At present, the rotating Red Banner for first place has been presented to the aviation podrazdeleniye where office B. Yakobchuk is the commander. Here there have been no instances of equipment failures during a flight due to the fault of the personnel, while aircraft stoppages in performing repairs are minimal. There have been no flagrant violations of military discipline. At present, here they are actively introducing a system of network planning and a dispatcher schedule. The podrazdeleniye has been completely equipped with the necessary equipment, as well as control-monitoring instruments and tools. In using the experience of this podrazdeleniye, a group of engineers has worked out a procedural aid for carrying out repairs using a system of network planning with dispatcher control. This is to be used in other chast. The introduction of advanced methods for organizing the execution of repairs has reduced aircraft stoppages, and has raised the reliable operation of aviation equipment, and increased the time between the repairs of radar equipment. Thus, at the radar station operated by the crew commanded by office I. Skryabin, the time between repairs has been increased by approximately 100-150 percent. This has made it possible not only to maintain military readiness on the level of the requirements, but also to save state funds.

Repairs and forecasting are inseparable concepts which are subordinate to a single production process. The operational reliability of the equipment depends upon them, as well as upon how effectively the forecasting methods will be chosen. Our chast have accumulated definite experience and abundant statistical material making it possible to seek out the more advanced forecasting methods. This is characteristic primarily for the aviation chast. Thus, in one of them, the engineers in their specialties have drawn up a list of assemblies, units and equipment in which failures occur most frequently. For each of them, complex parameters have been set, and from the change in these parameters it is possible to judge at approximately what hour of work the unit, in terms of its parameters, will not

satisfy the technical conditions, and consequently, the necessary measures must be promptly taken to prevent failures. In all the chast without exception logs are kept in which they account for the changes in the parameters measured during repairs. For the sake of clarity, these changes are depicted on time graphs.

Indicative in terms of forecasting are the tube laboratories which have been set up where they inspect, age, and select radio tubes prior to installation in equipment, and, particularly importantly, cull them. The work of such laboratories has immediately provided tangible results, as there has been a substantial decline in the number of failures due to the burning out of tubes, and the reliability of in-flight equipment operation has risen. We should point out the exemplary work of the laboratories created under the leadership of officers A. Kamyshan and N. Gerson. Here they have completely excluded the possibility of installing untested and unaged tubes in radio equipment. The advanced experience of these officers is being extended everywhere.

Great attention is paid to training the crews for carrying out the repairs and to inspecting the quality of the work done and its material support. Demonstration repairs are practiced for all types of radar stations in use, and here a good deal of time is given to the complete tuning of the station.

Ordinarily careful preparations precede the repairs. On the eve of carrying out the repairs, they determine the condition of the radar station and the membership of the crew, they ascertain the amount of work for each executor, they make the necessary corrections in the network schedule, they settle the question of material and equipment supply, they clarify the time for executing the individual operations, and the men are given specific assignments which they must carry out.

In the course of the repairs, the station chiefs supervise the quality of the work done. They not only inspect, but when necessary demonstrate how to perform one or another operation in a minimum time and with high quality. It must be said that the engineering and technical personnel give particularly great significance to the quality of work execution. Certainly the slightest negligence, carelessness and technical ignorance inevitably lead to a reduction in the equipment's reliability. This can be seen from the instance which occurred in the podrazdeleniye commanded by officer M. Pisar'kov. As a result of using uninspected and uncertified tackling, the equipment was broken. A good deal of time was required for repairing it.

Success in providing dependable operation of equipment, as is known, depends greatly upon the correct working order of the used control-monitoring and testing equipment, upon the ability of the personnel to use it effectively and to correctly evaluate its workability. At present every measure has been taken so that the adjustment of military equipment is done only using properly working, promptly tested control and measuring equipment

[KIA]. In carrying out this task, the podrazdeleniye are given great help by the men from the measuring equipment laboratories. Officers F. Nazarenko and N. Velidov, regardless of the natural difficulties, always reach the positions with their excellent equipment, they test out the used KIA, and if need be, repair it. Due to this, the KIA in the podrazdeleniye is always in proper working order, and this makes it possible to promptly and soundly determine the technical state of the units, assemblies and systems of the military equipment, as well as to take measures to provide its reliable operation.

The experience of the advanced podrazdeleiye shows that the more effective use of the KIA has made it possible for the engineers and technicians to raise the feasibility of the forecasting results, and on this basis to raise the reliable operation of operated equipment by 15-20 percent.

The rationalizers and inventors from all the branches of arms are working successfully in the interests of raising the reliability and level of combat readiness of the equipment. They have developed and created numerous stands, units and accessories which improve the working conditions of the specialists, as well as making it possible to ready the equipment for combat with a higher quality and in the shortest time. Reenlisted MSgt N. Kostinets, for example, has manufactured a unit for testing pipelines and high pressure containers. This unit makes it possible to perform the repairs and inspection directly in the podrazdeleniye. Previously, these operations were carried out in the repair bodies. Officer M. Yuzefov has developed a system making it possible to inspect the lowering of the landing gear before landing on the screen of a ground radar set.

Many other proposals have turned out to be valuable. Thus, the introduction of the results from the creative efforts of officer L. Gamin has made it possible to raise the quality of repairs on amplidynes and more effectively use them, while the proposals of officers T. Struk and A. Gorbachev have made it possible to provide dependable work of radar stations under low temperature conditions.

The performed experiments make it possible to say that the introduction of the technical solutions developed by officer Ya. Kozlov, M. Isakovich, N. Mel'nikov, I. Pronin and others will make it possible to reduce the time required for repairing the equipment for combat use by several times, at the same time having provided for its high reliability of action.

The repair enterprises also make a great contribution to maintaining the equipment in a state of combat readiness, in providing the podrazdeleniye with help in organizing correct operations, and in extending the period between repairs. They, as a rule, perform high quality repairs in strictly determined times. Moreover, the repairmen endeavor to make certain that the equipment leaving them is fully supplied up to the full norm for spare parts, tools and accessories, as well as the most used spare assemblies and units. All of this serves as a guarantee (with effective forecasting of the service life of the assemblies and units) for the reliable operation of equipment, particularly in remote regions.

In conclusion, we would point out that the personnel of the chast and podrazdeleniye understands well all the importance and responsibility of providing high combat readiness in protecting the air frortiers of our nation. The men are applying every effort so that the military equipment assigned to them is always operating dependably.

WINTER DOES NOT FORGIVE CARELESSNESS

The personnel of our chast and podrazdeleniye must operate antiaircraft missiles and radar systems in regions where low air temperatures, a high moisture content, and frequent and strong winds prevail. The severe natural conditions not only cause certain difficulties, but also determine the particular features in operating military equipment, and in maintaining it in a state of constant combat readiness. The selection published below tells of what work is being done by the soldiers, sergeants and officers in the interests of providing the reliable functioning of equipment under any weather conditions.

So That the Equipment Operates Reliably, by Maj Gen Art F. Simonov

For providing dependable work of the antiaircraft missile system during the winter, a number of measures were carried out in chast X to prepare the military equipment for winter operations. In particular, the infrequent repairs and technical servicing operations were carried out; the snow removal equipment was inspected and prepared; the readiness of the technical and warehouse facilities and the technical and firing positions was inspected. The men carefully cleaned the work areas and access ways to the positions, storage areas and shops. All of the necessary measures were taken to exclude the possibility of snow banking up on the military equipment. Moreover, the access ways to the launching units, control cabins and other areas were designated with markers, as well as the routes of the cable lines to the cabins for the purpose of excluding damage to them in clearing the starting positions of snow.

The officers also got ready for operating the antiaircraft missile system during the winter. Seminars were held at which the engineers and technicians discussed the various aspects of technical servicing of missile equipment under winter conditions. Instruction sessions and exercises on the same questions were held with the officers of the various specialties. Particular attention was paid to the training of young officers who had arrived in the chast from academies and military schools, as well as from areas with other climatic conditions. All forms of this training ended with the taking of exams which were a sort of certification for the officer allowing him to operate equipment during the winter.

Here extensive work was also done to meet the requirements for safety equipment and fire prevention measures. The boilers were repaired, the condition of the heating systems and furnaces were checked, as well as the state of the lighting and power electrical wiring in all the facilities and shelters. The correctness of installing the breakers and safety fuses in the distributor panels was also inspected. The fire fighting teams recharged all the extinguishers and outfitted the fire fighting boards with all the necessary tools and supplies. They also prepared duty truck tractors, as a rule, on crawler tracks, for the event of the emergency evacuation of equipment in shelters. As a result of all this work, it became possible to correct the fire safety instructions and the safety equipment instructions not only in each cabin, DES [diesel electric station] or at the launching areas, but also at each work area, in addition to organizing training and instruction for the non-T/O crews of fire fighting teams, considering the discovered shortcomings.

The commanders and the officers of the podrazdeleniye have endeavored to create every condition for the successful winter operation of the weapons assigned to them. Thus, on the floors of the radar station cabins, felt mats have been put down, and additional insulation has been provided for the doors, windows and ventilating openings. They have inspected and repaired (with certain replacements) the rubber gaskets in the lockers and assemblies which are outside the cabins, and have prepared insulated boxes for keeping the instruments necessary in making repairs in the open air, and have inspected the state of the rings of the current collectors and the assembly of the units.

The chast personnel is well aware that the dependability of antiaircraft missile installation depends greatly upon the state of the cable system. For this reason, the cable connections and the reliability of the contact couplings were inspected with particular care. All the cable trenches were lined with roofing felt and wood, thereby allowing the water to run off from the trench, that is, to protect the cables from freezing. In addition, toxic chemicals were placed in the trenches to protect the cables against rodents.

The waterlines were also not forgotten. Their proper sealing was inspected, as well as the integrity of the rubber gaskets in the flange connections of the waveguides. These were replaced with frost-proof ones with "Z" (winter) glue. It was made certain that the ventilating and heating systems were in proper working order.

In order that the starting and technical equipment operate reliably under winter conditions, the starting units of all systems were additionally sealed for the purpose of preventing water and snow from getting under the housing and into the units and mechanisms of the equipment by replacing them or glueing in packing rubber. All the ventilating openings were closed. Moreover, the summer lubrication was replaced with winter in all equipment as provided by the operating instructions. To avoid the freezing of the foundations of the launching unit to the ground, tarpaper gaskets

were placed under them, while used oil was poured into the train seats so that they could be pulled out of the ground without any difficulty. Here they also drew up schedules for the forming of the ampule batteries. These graphs gave the warming time depending upon the outside air temperature.

In the power equipment (the transformer substations) they checked the oil level in the transformers, reactors and other units, and in all the diesel electric stations they repaired the electric heaters and the warmer for the cooling agent and oil, and depending upon the temperature conditions, the density of the electrolyte in the storage batteries was brought up to the established standard.

In preparing for winter, they also carefully checked the condition of the electrical couplings of the cable system, their integrity, the correctness and reliability of their connection to the distributor panels, as well as the condition of the boxes and the insulating of the outlet boxes, the tanks for the fuel system of the closed jet DES, the quality of their banking. They also made certain that the tanks did not have any water in them. The technical state of the reserve moth-balled DES was inspected by the soldiers by starting them up. They were then put back in mothballs, and they checked whether there was any water in the cooling system.

The conditions of the Far North and the Arctic make a definite impression upon the work of the personnel operating the equipment. In considering this, the chast command has taken a number of measures to improve domestic conditions, the food system and medical services for the personnel.

The experience of the missile troops from the chast which we have described shows that such prompt winterizing of the equipment is a guarantee for its dependable operation and for maintaining it in a state of constant combat readiness under the conditions of low temperatures, snowfalls and storms.

Always Ready, by Engr Col V. Stepanov

The men of the radar podrazdeleniye commanded by Maj N. Bobylev must operate equipment in an area where windy weather lasts 317 days a year. Here in September and May, the winds reach a velocity of 30 meters per second and more. Moreover, in October and April, there is the heavy icing up of antenna systems. This leads to a significant increase in their weight and wind drag, and most importantly, to a worsening in the operation of receivers and transmitters and the SDTs [moving target selection] system, and to a reduction in the strength of the feeder systems and insulators. The situation is exacerbated by the fact that in the region of the installation there is also reduced atmospheric pressure and high humidity. Regardless of such complicated weather conditions, the soldiers, sergeants and officers have seen to it that the equipment assigned to them operates dependably, and is in a state of constant combat readiness. And this make

it possible for the personnel to always successfully carry out the missions which the command gives them.

The achieving of such high results has become possible due to the fact that the radar troops always carefully winterize the equipment. In particular, in September-October and April-May, here they carry out preventive repairs on the radar equipment, and in the course of this work the crews carefully check out the cable system, the waveguide tracks, the feeds, the equipment of the hydraulic drives, and the heaters installed inside the cabins, they seal the connections with waterproof mastic, they replace the lubricating, and abundantly lubricate surfaces which are strongly damaged by ice formation. Such lubricating, as experience shows, on the one hand, delays ice formation, and on the other, makes it easier to remove the ice crust.

In carrying out such jobs, the operators are particularly careful to inspect the joints of the water pipelines, as well as the antenna feeder systems (AFS). These systems as well as the current collectors, the elements of the high voltage units and the modulators are also inspected in the weekly repairs, and they are cleaned of dust and oxides. In truth, with this the period of repairs is increased by 25-30 percent.

For the purpose of providing high reliability in the work of the radar station, in the daily functional inspection, the crews remove ice from all the elements of the radar station, and the lubrication is replaced in the external parts of equipment which is subject to icing. Moreover, 30-40 minutes before turning on the equipment, the heating of the cab and trailers is turned on. Good results are achieved also by warming up the equipment first by schedule.

In order that the crews know of the approaching threat of icing on the antenna systems, at the positions of the podrazdeleniye they have set up so-called ice warning systems. This makes it possible to turn on the antenna heating system 30 or 40 minutes before the beginning of intensive ice formation. It is interesting to note that in the podrazdeleniye this system has been somewhat improved. In particular, instead of the regulation wire they have used a steel spring wire 1.2 mm in diameter and having significantly greater breaking and bending strength. Moreover, up to a temperature of 100° it virtually does not change its mechanical properties, and is easily installed and fastened in the antenna insulators. But most importantly, as a result of this change, the current in the wire has more than doubled. Because of this, the emission of heat per unit of wire surface has increased by approximately 50 percent. This has made it possible to remove significant growths of ice (up to 300 grams per linear meter) from the antenna reflector.

In order not to allow the overheating of the transformers in the heating system, here additional transformers have been installed, having connected them in parallel to the existing ones. Thus, the number of transformers has been doubled. And although the power consumed by them

has risen up to 140-160 kilowatts, and this has required the use of a special power plant, this measure has fully justified itself as in the podrazdeleniye there had not been any breakdowns of the heating system.

The heat engine developed by the rationalizers officers V. Yeliseyev, V. Aptekman and V. Shumakov also helps in effectively combatting the formation of ice. On the chassis of an ATS tractor, they have mounted a turning bracket on which a VK-1 aviation engine has been placed. On the same chassis there are also fuel tanks which provide for operating the engine without refueling for two hours, as well as starter storage batteries used for starting the engine.

With the help of hydraulic pumps, the bracket can be turned within a sector of 130° in a horizontal plane, and +30° in a vertical one. The operation of the engine, as well as its turning in a horizontal and vertical plane are controlled remotely, from the cab of the ATS tractor. Special heaters have been installed for removing ice from the walls of the air intakes on the VK-1 engine. The heat machine is used as follows. It is placed 25-30 meters away from the antenna, and creates a positive temperature up to 45-60°. This helps to gradually melt the ice of any thickness off the antenna struts.

In the process of preparations for winter, the personnel has paid particular attention to the cable system. The cables are laid in concrete trenches and are covered with sealed reinforced concrete slabs. Experience has shown that such a placement of the cables protects them against damage and electrical breakdowns under any snow layer, regardless of the frequent thaws and the very high atmospheric humidity. As for the cable connections, before laying the cables in the trenches, they are carefully sealed with a waterproof mastic. Every 50-60 meters, ventilation and drainage wells have been built in the trenches. Due to this, good conditions are created for protecting the cables.

The soldiers lay the cable in the trenches, dry them out, and replace the waterproof mastic on the connections twice a year, in May and October. This provides positive results. There has not been a single case of a cable failure during the three years of using the cables in the covered trenches.

The experience of operating the power system in the winter shows the advisability of buried general plant rooms. For this reason the engineers and technicians have installed the electric plants of two radar stations in a permanent area, providing remote control of the feed units from a central distributor post (TsRP). The equipment has been moved into a special room of the permanent general plant room. The power network has been connected to it, frequency converters have been installed, and a feed has been used for the closed jet fueling of the units. Tanks with fuel and lubricants have been buried in the ground.

In the interests of providing dependable work of the radar complex, the personnel of the podrazdeleniye during the period of preparing for winter, have also done definite work to provide shelter for the equipment.

Due to all of these measures, the radar weapons assigned to the troops are in a state of constant combat readiness year round.

ON THE RELIABILITY OF AUTOMATIC TARGET TRACKING

By Engr-Col B. Romanovskiy, Candidate of Technical Sciences

The supersonic speeds of modern aircraft and the intensive development of aviation equipment have substantially raised the demands not only upon the accuracy in determining the coordinates of high-speed targets, but also upon the reliability of automatic tracking. The most inflexible demands upon the reliability of automatic tracking are made at the initial period of target tracking and during moments of sharp maneuvers by the target.

In actuality, during the switching of the system to automatic tracking (the lock-on regime), as well as with sharp maneuvers of the target, transient processes occur. For better reproducing the signal in a transient regime, the system should be sufficiently broad-band. This provides for the changeover to automatic tracking under the conditions of comparatively inaccurate preliminary aiming, both in terms of position and in terms of speed.

Broadening the pass band of the system, in turn, leads to an increase in the tolerable value of the ratio of signal to noise, and this exceeds by several fold the threshold of the signal-to-noise ratio which limits the possibility of tracking the target under the conditions which have been established. Since the locking-on of the target precedes the tracking, broadening the pass band for the entire automatic tracking period is definitely not advantageous.

In order to most fully satisfy the demands made upon the reliability of automatic tracking both under lock-on conditions and under tracking conditions, the parameters of the radar tracking system for each state are chosen differently, by switching the appropriate targets using a time relay or any other switching device (Figure 1).

A particular feature of the radar tracking system is that the measuring unit has a restricted area of action (aperture L). This is illustrated by the discrimination characteristics shown in Figure 2. From it we can see that if the output signal Y(t), in switching to automatic

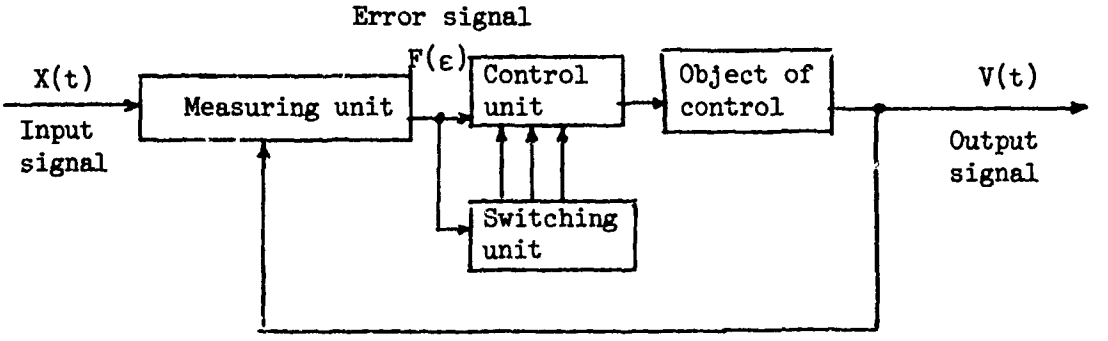


Figure 1. Block diagram of radar tracking system.

tracking, will differ from the input X(t) by the amount $\varepsilon(t)$ which is larger than aperture L, then the signal on the output of the measuring unit $F(\varepsilon)$ will begin to drop, and the target will not be locked on to the automatic tracking. For this reason, first the system should be put into tracking state, that is, the target should be locked on in automatic tracking. The changeover to tracking conditions can be done automatically or manually.

Under the conditions where high-level interference is used, in the event of sharp and significant changes in the input controlling actions X(t), the deviation of the output signal from the input (ε) can go beyond the limits of the discrimination characteristics. In this instance, the signal on the output of the measuring unit equals zero, and the control circuit is broken. Tracking is broken off.

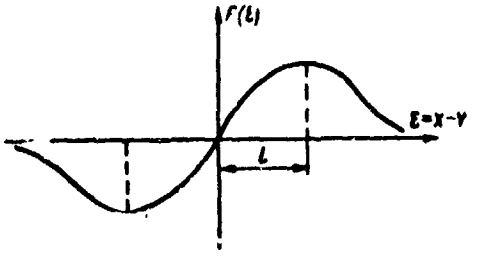


Figure 2. Discrimination characteristics of measuring unit

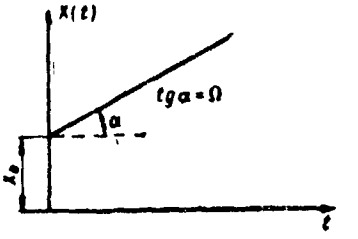


Figure 3. Law of change of input signal.

Let us examine the questions of the reliability of target lock-on to automatic tracking in terms of the automatic tracking system from angular coordinates. With a high level of the signal/noise ratio, the

characteristics of the radar measurer is rated by the automatic gain control system, and the internal noise of the receiver is suppressed. Under these conditions, the relative error level due to the presence of noise in the total error of determining the angular coordinates is slight, and the basic proportional amount is due to mistakes caused by other factors (for example, dynamic errors).

Each system for automatically measuring angular coordinates can conditionally be divided into a direction-finding unit and an actuator. The basic characteristic of a direction-finding unit of any type is the dependency of the output voltage upon the angular target misalignment relative to the equisignal direction. It has the form of the discrimination characteristics as shown in Figure 2, and possesses a central symmetry relative to the origin of the coordinates. And since a radar station for precision coordinate measurement has an insignificant width in the ratiation pattern, the target can be lost in locking-on to the automatic tracking system.

The target is considered lost if in the lock-on, there is a deviation of the output value whereby the reproduction error of $\varepsilon(t)$ goes beyond the limits of the angular aperture (L). By the angular aperture one understands the amount of target deviation from the equisignal direction, and this amount corresponds to the maximum direction-finding characteristics of the radar measuring unit.

The speed component in the change of target angular coordinates has a significant effect upon the dynamic accuracy and reliability of automatic tracking. For this reason, we will examine this question for a case when the input signal changes according to the law shown in Figure 3; $X(t) = X_0$ $X(t) = X_0 + \Omega$. Obviously, from the standpoint of the reliability of a lock-on, a better system is one which would lock the target into automatic tracking with a high rate in the change of the angular coordinate Ω. This is why it is of interest to determine the maximum rate of change in the input signal Ω_3 where it is still possible to lock the target onto automatic tracking, and an influence of the basic parameters of the system on the reliability of lock-on is also feasible.

If we can know in what manner the various parameters of the system will influence the tolerable rate of change for the input signal, then it becomes clear how we must change the parameters of the correctors for the conditions of locking the target on to automatic tracking. For examining the physical aspect of the process and for ascertaining the quantitative relationships which characterize the influence of the system's parameters on the reliability of locking the target on to automatic tracking, it is essential to examine the behavior of the system's error $\varepsilon(t)$ in time. For this we would have to describe the behavior of the system using differential equations, and find the necessary solution. However, considering the complexity of the mathematical calculations, here we will limit ourselves solely to a qualitative examination of the physical aspect of the process involved in locking the target on to automatic tracking.

We will examine the measuring unit's characteristics depicted in Figure 2 in the form shown in Figure 4a, and the change in the error $\varepsilon(t)$ in time for the input signal $X(t)$ on a plane with Cartesian coordinates ε , $\dot{\varepsilon}$ (Figure 4b). Here $\varepsilon(t) = X(t) - Y(t)$ characterizes the deviation of the error in time, while $\dot{\varepsilon}(t)$ -- the rate of change of the error.

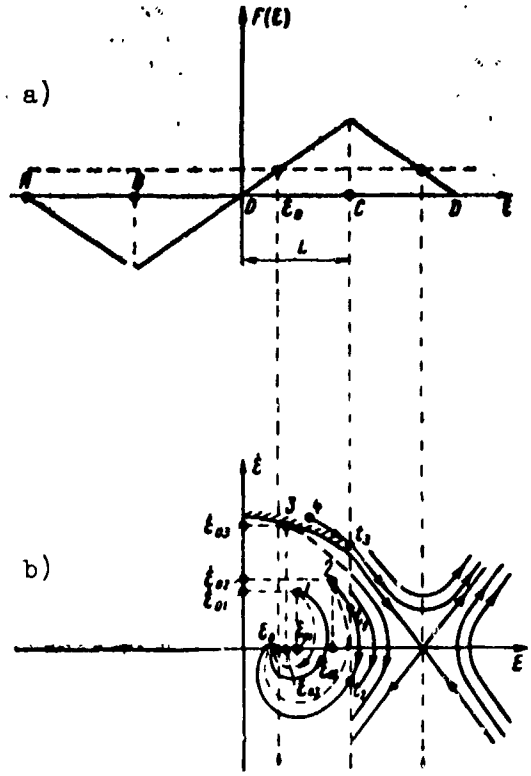


Figure 4. a) characteristics of the measuring unit; b) phase portrait of the system.

One and only one of the state of the system corresponds to each state of the system, and to each pair of values for the ε coordinates and the $\dot{\varepsilon}$ rate. The plane ε, $\dot{\varepsilon}$ is called a plane of states, or also a phase plane. It depicts the aggregate of all the possible states of the system. The constantly new points of the phase plane correspond to each new state of the system. Thus, the movement of a certain point on the phase plane can be compared to a change in the states of the system. The trajectory of such an image point is called the phase projectory.

Let us explain the physical aspect of the process of locking the target on to automatic tracking with the aid of a phase portrait of the system. Let us assume that at the moment the system is switched to automatic tracking ($t = 0$), the deviation of the output signal $Y(t)$ (the measured coordinate) differed from the input signal $X(t)$ (the true value of the coordinate) by the amount ε_{01}, while the rate of this deviation equaled $\dot{\varepsilon}_{01}$. On the phase plane, point 1 would correspond to such an

initial state of the system. From the moment of switching to the established state, in the system there will occur a so-called transient state. The phase trajectory corresponds to the movement of the system in the transient state on the phase plane. The image point moves along this trajectory from the initial state 1 to the set state ε_0. The value of ε_0 which equals the kinetic error of the system is directly proportional to the rate (Ω) of change of the input signal and is inversely proportional to the gain factor of the system (K_v).

If the parameters of the system change, for example, by a change in the parameters of the corrector, then the movement of the system from the initial state to the point of the set state will occur along another phase trajectory (the broken lines in Figure 4b).

Let us examine a case when point 2 on the phase plane corresponds to the initial state of the system. As can be seen from the figure, with the movement of the system from point 2 at the moment of time t_1, the error of ε (t) reaches a value $\varepsilon = L$, and subsequently the image point will move along a trajectory corresponding to the section CD for the characteristics of the measuring unit. Here the amount of error $\varepsilon(t)$ will remain greater than aperture L. At the moment of time t_2, the error $\varepsilon(t)$ becomes less than L, and the movement of the image point which will again occur along the trajectory corresponding to the section BC for the characteristics of the measuring unit.

In reasoning in an analogous manner, it can be noted that if, for example, point 4 on the phase plane corresponds to the initial state of the system, then at the moment t_3, the movement of the image point will shift to a phase trajectory leading the system from the set value. The target will not be locked on to automatic tracking.

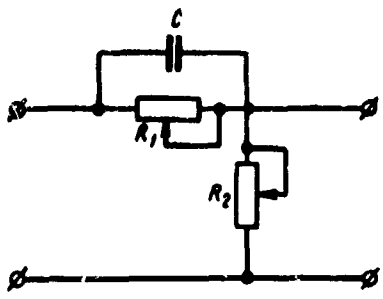


Figure 5. Diagram of a corrector.

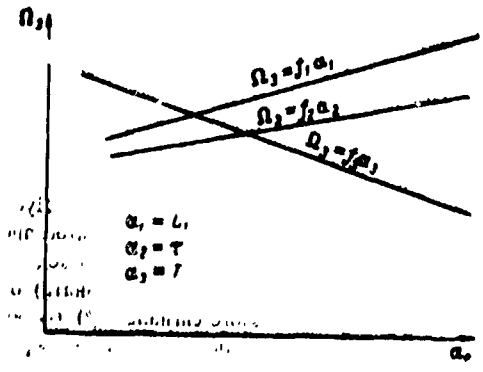


Figure 6. Dependency of tolerable rate of change for input signal upon various parameters of the system.

From the examination of the phase portrait, we can see that the target will be locked on to automatic tracking, if the image point begins

its movement from a point on the phase plane located below the crosshatched maximal trajectory. But if the initial state of the image point is above the maximal trajectory, then in its movement it will move away from a stable equilibrium, that is, the target will not be locked on to automatic tracking. Consequently, the tolerable rate of change of the input signal $\Omega = \Omega_3$ at the moment of locking on with the set initial discrepancy $\varepsilon = \varepsilon_0$ is determined by the image point lying on the maximal trajectory.

If the input signal is constant $X(t) = X_0$, ($\Omega = 0$) and the initial discrepancy $\varepsilon_0 = X_0$ does not go beyond the limits of the discrimination characteristics, then the target will be locked on to automatic tracking. With an increase in the rate of change of the input signal, the tolerable initial discrepancy ε_0 declines. Thus, in locking high-speed targets on to automatic tracking, there must be the more accurate preliminary determination of target coordinates both in terms of position and speed. For increasing the reliability of the lock-on, the parameters of the system can be changed (by changing the parameters of the corrector) in such a manner that the movement of the system to a stable equilibrium occurs with greater initial discrepancies both in terms of position ε_0 as well as in terms of speed $\dot{\varepsilon}_0$.

Let us explain this from an example. Let us assume that a corrector has been included in the system in series with the remaining elements. A diagram of this corrector is shown in Figure 5. For the given diagram, let us introduce the designations:

$$\tau = R_1 \cdot C;$$

$$T = \frac{R_2}{R_1 + R_2}.$$

Obviously, in changing the parameters of the corrector (for example, R_1 and R_2), it is possible to influence a change in the system's parameters as a whole. This in turn will lead to a change in the reliability of locking the target on to automatic tracking.

The effect of the parameters of the system and corrector on the reliability of locking the target on to automatic tracking is illustrated in Figure 6. Here the qualitative dependencies have been shown for the tolerable rate of change in the input signal Ω_3 upon the various parameters. Obviously, the higher the tolerable rate of change for the input signal, the more dependable the locking of the target on to automatic tracking will be. From Figure 6 it also can be seen that this reliability increases with an increase in the aperture of the discrimination characteristics (L), with an increase in the time constant of the differentiating contour (τ) and with a reduction in the inertia of the system (T). However, it must be remembered that the width of the aperture of the discrimination characteristics (L) is directly dependent upon the width of the radiation pattern of the antenna system. The optimum system, from the standpoint of locking-on, will not be the optimum one for tracking conditions.

In order to satisfy the requirement of reliable locking-on and reliable tracking of the target, during the time of the transient process, using the switching of parameters of the corrector (or by using a nonlinear correction) it is obviously essential to choose those values of the parameters which would provide the greatest reliability for locking the target on to automatic tracking. After the end of the transient process, the parameters of the system should be such as to provide optimum tracking conditions.

The questions examined in the article, in our view, will help the engineers and technicians in achieving a sound approach to choosing the parameters of correctors in the automatic tracking system in the process of operations and repairs.

A GUARANTEE FOR CONSTANT COMBAT READINESS
(On Inspecting the Technical State of Radar Equipment)

By Engr-Col V. Dolgopolov

One of the important indexes for the combat readiness of a chast (podrazdeleniye) is the technical state of the operated weapons. This depends upon a number of factors, including the system and effectiveness of control over the maintenance and safeguarding of radar equipment, and the maintaining of it in constant combat readiness.

The experience of recent years has convinced many people that the role of inspecting the technical state of equipment has increased along with the greater complexity of the equipment. This is caused by the fact that the slightest inaccuracy committed in adjusting and tuning the units and assemblies or in preparing it for combat use can serve as the reason for a failure of the equipment and lead to the nonfulfillment of the combat mission.

Inspection of the technical state of weapons is a guarantee for their constant combat readiness. This simple truth has been well learned by the engineers and technicians of chast X. They give a great of effort to improving the system for inspecting the technical state of radar equipment, and make certain that this system meets the requirements made upon radar troops at present.

The results of an inspection of the podrazdeleniye commanded by officer Furman served as the reason for discussing the inspection system. The inspectors discovered a number of serious shortcomings in the technical state of the radar equipment. While individual shortcomings had existed previously, in the first inspection of the same podrazdeleniye, it was felt that their appearance was due to the arrival of a new commander. However, as a detailed analysis indicated, the main reason was that the inspection system existing in the podrazdeleniye for the technical state of the radar equipment did not fully meet the modern requirements.

This alarmed the command of the chast and all its engineers and technicians. The question of inspecting the state of radar equipment was put on the agenda of the party and Komsomol meetings, the assemblies of various

categories of engineers and technicians, and then was brought up before the chast party activists. The communists Paramonov, Klyuyev, Klement'yev and many others, using specific examples backed up with figures, showed the direct dependency of the technical state of the radar equipment upon the quantity and quality of inspections as well as upon the methods and procedures for carrying them out. Particularly interesting was the speech by communist Kravtsov who showed that the technical state of radar equipment is always exemplary in those podrazdeleniye where the commanders in actuality and not formally carry out inspections for the maintenance and safekeeping of equipment, while the obtained results are reinforced with vital organizational activities.

The proposals made by the communists and Komsomol members helped to improve the forms and methods of inspection on all levels engaged in organizing the operation of the equipment. In particular, there was an improvement in the planning of inspections conducted by the engineers and technicians from the chast staff. At present it has already become a rule that the engineers from the chast technical service two or three times a year inspect all the weapons of the podrazdeleniye, with the assigning of evaluations for the technical state, maintenance and safekeeping. Here one of these inspections is carried out in such a manner that the podrazdeleniye personnel does not know of it.

The specialists from the chast technical service not only discover one or another shortcoming in the technical state, but also bring out the reasons for their appearance, help the crews eliminate them and provide advice and recommendations aimed at improving the maintenance and safekeeping of the radar equipment. Moreover, the staff engineers conduct exercises on those which the men have poorly assimilated.

At one time, in one of the podrazdeleniye, during an inspection it was discovered that at one of the stations, individual parameters were beyond the tolerance limits. The radar station was actually unfit for combat. The station chief eliminated the designated malfunctions in several minutes. It would seem that the problem was over. However, in delving into the reasons which caused these shortcomings, many oversights were detected. At the station, lockers and individual units were not assigned to crew members. The men had little knowledge of the range and procedure for carrying out daily technical maintenance and weekly repairs. In essence these types of maintenance on the radar station were carried out formally. Moreover, it turned out that the station chief did not allow the crew members to inspect and tune individual systems of the radar station, fearing that out of a lack of experience they could make them inoperable.

In order to rectify the situation, the engineers from the chast technical service carried out extensive explanatory work, they helped to eliminate the shortcomings, and demonstrated to the crew members how the weekly repairs should be carried out on the units and assemblies assigned to them. On the basis of the experience of one of the best chiefs of the radar station, officer Zaynagutdinov, a demonstration exercise was held in organizing daily technical maintenance.

Practice shows that such supervision gives positive results. In the first place, it makes it possible to ascertain the true state of the equipment in its daily operation. Secondly, it is possible to judge the attitude of the servicing personnel to the equipment. Thirdly, it is possible to determine the role and effect of the command and engineers and technicians of the podrazdeleniye on the upkeep of the weapons. Fourthly, it is possible to take effective measures to eliminate the shortcomings existing in the operation of the equipment assigned to the men. Fifthly, it is possible to teach the men skills using the experience of the best men.

Life teaches that no matter how frequently the officers of the technical service inspect the state of the radar equipment, the desired result cannot be achieved, if the podrazdeleniye commander personally does not make an inspection. This is why, in the chast which we have mentioned, a number of measures were taken so that each commander and his deputy be able to knowledgeably inspect the combat readiness of all the equipment existing in the podrazdeleniye. They were taught this in assemblies, during visits by staff engineers to the podrazdeleniye, and by carrying out individual assignments and taking exams from them. This made it possible to raise their technical knowledge and practical skills, and to develop in them the habits of inspecting the basic parameters of a radar station which determine combat readiness. Many commanders and their deputies have become high-class specialists, and they inspect the technical state of the weapons assigned to them systematically and professionally.

In this area there is much that can be learned from officer Purpish-Plavinskiy who has excellent knowledge of all the equipment assigned to the podrazdeleniye. He inspects the state of the equipment in accord with a weekly plan of the following contents:

No	Name of measure	Date of execution	Note
1	Inspection of technical state and upkeep of type A radar	Mon. (2 hrs)	
2	Inspection of organization and quality of execution of repairs on type B radar	Tues. (1 hr)	
3	Inspection of technical state of radio sets; observance of safety rules and fire measures by personnel	Wed. (2 hrs)	
4	Inspection of state, accounting, storage and upkeep of firearms	Thurs. (2 hrs)	
5	Hearing reports from chiefs of radar stations on the use of equipment life, on the course of replacing malfunctioning equipment, and introduction of recommended improvements during week	Sat. (2 hrs)	

From the given plan, we can see that the podrazdeleniye commander spends 10 hours a week on inspecting the technical state of the weapons. And, in inspecting the station, he checks out its basic parameters, the personnel's knowledge of the units and assemblies which they operate, the quality of repairs done, and the supplying of spare parts, tools and accessories for the radar station, the presence of lists for missing equipment, the correctness and accuracy of keeping the log books, and the observance of safety rules and fire fighting measures by the personnel. Such a method of inspection, as experience shows, is a help and hidden reserve for raising not only the level of the technical state of the radar equipment, but also skills of subordinates.

Unfortunately, not all the podrazdeleniye commanders act in this way. In the chast there are also those who inspect the technical state of the radar equipment only haphazardly. This happens because some of them do not have the required amount of knowledge to inspect a radar station. What knowledge should a podrazdeleniye commander possess in order to inspect the readiness of a station to carry out a combat mission? There are all sorts of opinions on this question. However, many are inclined to feel that the commander must have a firm understanding of the operating principle, the functional systems, and the scope and procedure for inspecting the basic parameters of all equipment assigned to the podrazdeleniye. Such an opinion is adhered to in the chast which we have been discussing. Here they have strictly determined the list of parameters which each podrazdeleniye commander, his deputy for political affairs, the chief of a radar station and other officials responsible for the combat readiness of the podrazdeleniye should be able to inspect.

Undoubtedly, in the chast not everything has been done so that the inspection of the technical state of the radar equipment meets the level of modern requirements. For this reason, here a great deal of work is being done to raise the quality of inspection, and they are endeavoring to eliminate the existing instances of superficial inspections of the equipment's state. By collective efforts recommendations are being worked out on questions which they plan to study in the process of an inspection with the personnel of the podrazdeleniye. Such an approach makes it possible not only to improve and refine the skills of the engineers, but also develops in them the habits of propagandizing technical knowledge in the podrazdeleniye.

We must not tolerate a situation where individual podrazdeleniye commanders view the inspection of the technical state of the radar equipment as episodic audits. To act in this way means to do harm to combat readiness.

The engineers and technicians of the chast are endeavoring to raise the effectiveness of inspection, and to give greater publicity to its results. Unfortunately, it also happens that the discovered shortcomings in the technical state of the radar equipment in one podrazdeleniye after a certain period of time mature or emerge in another one. In

order to avoid this, the engineers are giving thought to how all the podrazdeleniye can more effectively be informed of the results of inspections and recommendations to eliminate the discovered shortcomings.

The chast command has confronted the rationalizers with the problem of evolving a more advanced method for evaluating the technical state of radar equipment with the introduction of quantitative criteria for each specific type. This will make it possible to evaluate a podrazdeleniye considering the tactical missions being carried out by it. Such scientifically sound criteria would help in objectively evaluating the state of the equipment in holding competitions and contests between the crews, podrazdeleniye and chast. We feel that the work of developing such criteria should not be done within the limits of chast but rather on a broader scale.

PRIMARY INFORMATION IN THE DIAGNOSIS OF MALFUNCTIONS

By Engr-Col V. Filimonov

During flying days, sometimes the following picture is observed. The aircraft, after landing, taxies into the preparation and release area. The pilot states: "The aircraft radar set operated unreliably." The chief of the service group or the radar technician talks literally several minutes with the pilot, ascertaining the details of the external manifestations of the malfunction, and then, without even looking into the radar compartment or aircraft cockpit, orders the mechanic to take out and replace a certain unit. Soon everything is ready, and the interceptor continues to carry out the mission.

Ordinarily, they say that such specialists who have mastered the most complicated thing in their job, that is, the diagnosis of equipment malfunctions, are a "master of their job." The work of officer D. Sukhoverkhov could serve as an example of such mastery.

At one time, we, the fellow officers of Sukhoverkhov, were amazed and, frankly speaking, even envious of his ability to eliminate malfunctions "underway," without disrupting, in a majority of the cases, the general rhythm of preparing the aircraft for the next flight. Was this a particular talent, experience or just chance? However, in carefully watching the work of this officer, it was not hard to understand that what from the outside seemed easy and simple was in fact a most complicated process, and the result of analyzing an enormous amount of previously acquired information and comparing it with what had just been obtained from the captain of the crew.

Above all, officer Sukhoverkhov had a perfect knowledge of the design and operation of a radar set, remembering clearly its functional system, the particular features of the interaction and mutual effect of both the blocks as well as individual key systems and cascades. Moreover, he remembered virtually all cases of the most characteristic failures and malfunctions of the set which had appeared in the aircraft radar stations of his own or adjacent podrazdeleniye. Some of them which occurred particularly in complicated circuit interconnections had been modeled on a stand in the laboratory.

All of this aided him, just by turning on the screen of the aircraft radar set or by the "behavior" of the target blip given in the pilot's information, to judge the possible causes of the failure, and, most importantly, the best way for eliminating it.

Unfortunately, as yet certain specialists either neglect or are not able to use primary information on equipment failures. For example, the following case comes to mind. An engine had been replaced on an aircraft. Before a test flight, it was repeatedly inspected, as is ordinarily the case, before and after the joining of the fuselage, upon acceptance from the TECh [maintenance unit] group, and prior to takeoff. And since each time the parameters of the power unit conformed to the established norms, the aircraft was allowed to take off.

But during the flight, things happened otherwise. The pilot gained the altitude set by the test program, and pressed the button for switching on the afterburner. However, there was no increase in power which is customary in such instances, as the afterburner was not activated. Several repeated attempts also did not give the desired result. The flight had to be aborted.

On the ground, the operation of the afterburner system was again inspected. And again, everything seemed normal. The flight technician decided to neglect the old admonishment of flyers: "If the reason of the failure has not been discovered, it still does not mean that it does not exist." He drew a bold, but, as subsequent events showed, mistaken conclusion, that is, the activating of the afterburner had been done at a flying speed which did not correspond to the speed for the reliable ignition of the afterburner chamber.

A second test flight for the engine did not prove any better, as the afterburner still did not come on. The aircraft was again towed to the service area. It would be difficult to say how much more time would have been lost in discovering the reason for the failure if an event had not helped.

When the engine was warmed up, the flight technician again began to turn it over at a high speed. At this same time, another aircraft taxied by the service area. In order that the dust which it stirred up did not get into the cockpit, the flight technician was forced to close down and seal the canopy of his aircraft. Then, in continuing the test, he pressed the button for activating the afterburner, however, no burst followed. The afterburner system behaved just as it had in the air. As soon as the cabin was unsealed, the system again began to work.

Everything became clear. The malfunction had been in one of the elements the functioning of which depends upon flight altitude. This element turned out to be a microswitch designed to cut off the afterburner in the event of a release of the catapult seat of the pilot. And the reason for its incorrect activation became clear. The mechanic who had inspected its control system before the installation of the new engine had

shortened the stem of the microswitch. As a result, with an increase in the pressure fall in the cockpit (a climb in altitude), the floor, as is usually the case, was slightly bent, and the housing of the switch which was attached to the floor pulled away from its stem, and the power circuit for the solenoid of the afterburner pump was cut off.

Thus a seeming "minor detail" two or three "threads" on the stem of a microswitch, led to the loss of several days of work and to the release of a malfunctioning aircraft for service, that is, in essence, to the potential conditions for a flight accident. Why did this occur? Above all because the specialists of the IAS [aviation engineering service] who were concerned with studying the engine did not use the information which the pilot provided. He could have answered many questions such as: the instrument readings prior to, during and after each attempt to activate the afterburner system. His story would have been approximately thus: "As soon as I pressed the button, the signal light came on, the engine revs increased somewhat, but temperature fell. The arrow of the pressure gage for the afterburner fuel remained at zero. After I switched off the afterburner, all the engine parameters returned to normal."

This information would seem completely sufficient in order to understand that that area of the afterburner system which controls the shutters of the jet nozzle and fuel ignition was working properly. The malfunction was in those assemblies which control the delivery of fuel to the afterburner manifolds.

The IAS specialists also had important information. For example, they knew that the fuel system had failed only in flight, but had worked normally on the ground. Consequently, its failure was due to the elements which depend upon flight altitude. Precisely which ones? Obviously, those which could be adjusted, that is, those having adjustment elements. However, experience suggests that spontaneous misadjustment of mechanical systems happens very, very rarely. Hence, the first to be inspected would be those adjustment points where some work had been done.

Thus, the flight technician and the aircraft technician could have reached correct conclusions without the double test flight for the engine and without numerous testings of it, that is, as officer D. Sukhoverkhov had done. But, unfortunately, they had neglected another source of information, that is, about analogous failures which had been previously encountered, about work which had been done on the aircraft, and so forth. In other words, the specialists did not have a clear program of actions. Without this any search for the malfunctions would be turned into a set of random and frequently unrelated operations.

The content of such programs can vary, as everything depends upon the specific situation. For example, Capt Tech Serv G. Medvedev, an engineer in a podrazdeleniye stationed in the northern regions, has always demanded that the first point of such a program be a check of those areas of the aircraft systems where adjustment, assembly and repair work had been done not long before the failure. And the reason for this was not because,

as certain skeptics asserted, the engineer did not trust his subordinates or doubted their knowledge or skills. It was not so simple. The specialists in the podrazdeleniye of officer G. Medvedev had been trained just as well as in the other aviation chast. But they were working under other conditions. The North is the North. There are frosts, snowstorms and many months of darkness. All of this complicates the working conditions and raises the probability of errors by the technicians and mechanics. And this cannot help but be considered.

The contents of the program also changes depending upon conditions. For example, in a sandy area, one should check first of all those units and assemblies which are particularly sensitive to mechanical inclusions. If, let us assume, there has been a temporary jamming of the power control booster, then most probably the hydraulic system is the site of the failure. If a trimming tab is caught, then the failure is probably in the reduction unit of an electric motor, and so forth.

No matter what the content of the program, it should provide first of all for a study of all the aircraft systems and their relationships. It should provide for a comparison of the external manifestations of the given failure with the manifestations of previously encountered ones. It should provide for the creation of conditions which are as close as possible to those under which the failure occurred. It should also provide testing of the aircraft or engine systems.

Someone might argue: What would have been the actions of the chief of the radio and radar service group which we discussed above? Certainly it was not as if he were following any program. The point is that he follow the program, and do this very strictly. Thus, he would receive information on the external manifestations of the failure of the aircraft radar set from the pilot and by modeling them on a stand. If this was not sufficient, he could obtain it directly in the aircraft cockpit. Having thoroughly studied the aiming system and all the possible cases of a disturbance of normal work, this specialist could quickly analyze each specific failure and determine in which unit it lay. In an ordinary situation no more is required, as it is important to keep the aircraft in service. As for the specific reason for the failure (in the given case, a part or parts of a unit), it should be determined in a laboratory. Here it is possible to work without hurrying, and most importantly, one would not compare, for example, laboratory conditions with a flight preparation area, at least from the standpoint of the equipment of the work areas.

Various methods are used to determine the reasons for specific failures. Precisely which one must be used in one or another instance, depends upon the conditions. For example, take the method of successive approximations and the halving method.

The realization of these methods is work that is purely mechanical and virtually excludes error. For this reason, it is advisable to use them during the period of developing equipment, when specialists do not have sufficient statistical data on its failures and malfunctions, while knowledge

of them does not make it possible to interrelate the external manifestations of the functional defects and the functional diagrams of the aircraft equipment.

The third method of "time-probability" requires a significant amount of information. Here, the sequence in testing the elements is established from the maximum ratio of a probable failure (P) for each of the equipment elements to the time for inspecting them (T). The first to be inspected is that element which has the greater ratio.

In order to discover the amount of the designated ratios, it is essential to know the amount of their components, that is, to have available a sufficiently large amount of statistical information. Nevertheless, this method also gives random (in the sense of labor expenditures) results. It is just as probable that the defect will be found in the first inspection as it would be determined only in the last one. In truth, the labor intensification of the inspections is somewhat reduced if the second and third methods are used simultaneously. For example, in the first one a check out of that portion of the functional chain in which the element with the maximum ratio is located, and then that quarter where the element is located with the greatest of the remaining values for the same ratio.

The method of functional-logical systems is the most advantageous. By using it, from just the external manifestations alone, it is possible to establish not more than two or three elements of the equipment where the cause of the failure is located. And this is done by simple graphical constructs on a functional-logical diagram of the system or the entire complex of interrelated systems.[1] And here, the examination of the two remaining elements, under all conditions, does not represent any difficulty.

Certainly, the last method for seeking out the specific reason of a malfunction does not give the desired results, if the aviation specialist does not possess primary information about the external manifestations of the failure. For this reason, before using it, it is essential to become familiar with all the sources of such information, that is; to question the pilot, to study the entries in the logs of the flight operation officer, the engineers, and repair groups, and to decipher the film of the aircraft recorder. The more such information there is, the simpler the search.

The specific cause of the failure found using one of the listed methods is already secondary information on the failure. This is precisely what is needed for organizing preventive measures.

1. Vestnik Protivovozdushnoy Oborony, 1968 No 5.

TO BE ABLE TO PREDICT FAILURES

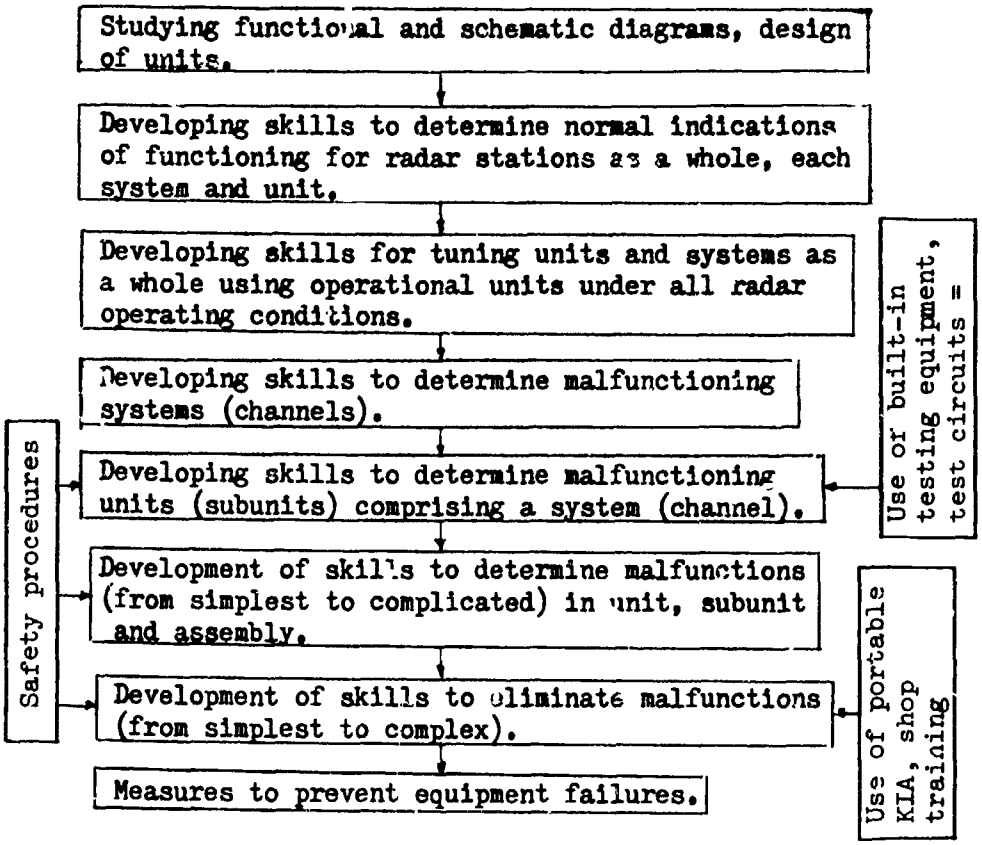
By Engr-Lt Col V. Grishunin

The article by Engr Maj A. Golubev examines certain questions in training operators to seek out and eliminate malfunctions in radar equipment. From the methodological standpoint, the author is completely correct, in feeling that the study and development of practical skills in determining the indications of normal functioning for all the systems of the radar stations and each unit individually are the first stage in training operators.

However, we feel that it is methodologically premature to go immediately after this to developing skills in finding malfunctions from simple to complicated ones in a unit, and then in a system. This should be preceded by the following stages; developing skills in determining malfunctioning systems (channels); developing skills in detecting malfunctioning units (subunits) comprising a malfunctioning system (channel). During these training stages, the operators should study the safety rules as well as the rules for using the built-in and regulation portable control and measuring equipment. It is equally important to teach them to use the testing circuits.

Before beginning to teach operators to eliminate malfunctions of medium and great complexity, it is essential first of all to teach them to perform some soldiering, assembly and simple mechanical jobs.

For maintaining the equipment in a high state of combat readiness, it is important not only to teach the operator to find and eliminate malfunctions, but, and this is the most important, to teach him to take prompt measures to anticipate equipment failures. From our viewpoint, it is a methodological mistake to instruct operators from such examples as "incorrect connection of cable to units." In practice, a number of instances are known when the connecting of even high frequency cables over which pass signals for controlling the turning systems of various equipment has led to the failure of the radar station, let alone the tangling of power and low-frequency cables. For this reason, it is advisable to train operators according to the system given on the next page.


Studying functional and schematic diagrams, design of units.
Developing skills to determine normal indications of functioning for radar stations as a whole, each system and unit.
Developing skills for tuning units and systems as a whole using operational units under all radar operating conditions.
Developing skills to determine malfunctioning systems (channels).
Developing skills to determine malfunctioning units (subunits) comprising a system (channel).
Development of skills to determine malfunctions (from simplest to complicated) in unit, subunit and assembly.
Development of skills to eliminate malfunctions (from simplest to complex).
Measures to prevent equipment failures.
Safety procedures
Use or built-in testing equipment, test circuits =
Use of portable KIA, shop training

A SYSTEMATIC APPROACH -- THE MAIN THING IN INSTRUCTION

By Capt V. Anan'yevskiy

The questions raised in the article by Engr Maj A. Golubev is a very timely one. The problem is that, as has been shown by extensive experience of working on equipment, as a rule, a good deal of time is spent, particularly by new officers and soldiers, on seeking out malfunctions and eliminating them.

Military personnel must be trained to seek out malfunctions not only, as the author writes, consistently, efficiently and carefully, but, as we have become firmly convinced from our own experience, systematically, without allowing long interruptions in work on equipment. For such interruptions inevitably lead to a weakening of the acquired practical skills.

The forms and methods for training operators can vary. Practice shows that with the presence of experienced engineers and technicians as well as highly skilled sergeants and operators in a podrazdeleniye, and if time permits, the trainees must first be given thorough theoretical knowledge. If there is no such opportunity, then they should first study the functional communications circuits, the operating conditions for the units and assemblies so that they could even tentatively find the "address" of a malfunction. Here we must see to it that the operators have a thorough knowledge of the purpose of the various levers, switches, and controls as well as their role in changing the operating conditions of the equipment. The schematic diagrams and the physical concept of the operation of the individual units are studied later by the operators, when they have a sufficient basis for understanding such questions.

We would like to point out the following feature. The officers study with the operators not only the characteristic malfunctions described in the literature, but also those which recently were encountered in the service equipment, since each unit, assembly and system has its own character and its own specific operating features. The knowledge of them helps the operators to more quickly take the correct decisions in seeking out malfunctions.

The officers of our podrazdeleniye, in the course of training the operators to seek out and eliminate malfunctions, endeavor to give them the knowledge and develop in them the skills so that they feel the work of the equipment they service in the same way that a pilot feels his aircraft or a driver his vehicle.

SCIENTIFIC ORGANIZATION OF LABOR AND SHOPS

By Engr-Col R. Tsymbalyuk

In one of the podrazdeleniye, sometime ago a transformer went out. It had to be rebuilt immediately. However the men of the shops headed by Capt V. Lisiy could not do this. And the equipment stood unrepaired for more than three weeks until a new transformer was received from the supply depot.

Such a shortcoming is characteristic not only for the collective where Capt Lisiy is the chief. Unfortunately, it is also inherent to certain other shops. This is explained, in the first place, by the fact that their individual leaders still give little attention to the professional training of the radio repairmen, particularly to their practical skills, and to developing their abilities to carry out various repair operations. Secondly, not enough attention is given to staffing the shops with men capable of mastering the military training program in a short period of time and becoming good repairmen. Thirdly, the activities of the shop personnel is not planned with sufficient thought, as a consequence of the fact that the existing instructions which cover the operation of radar equipment do not contain specific recommendations for the engineers and technicians to plan and evaluate the production activities of the given podrazdeleniye. All of this, taken together, has a negative effect upon their work.

What must be done in order to raise the effectiveness of shop work to the level of the modern requirements made upon the combat readiness of the radar troop chast? As experience shows, for solving this question, it is essential first of all to raise the level of vocational training for the specialists. At present, some chiefs, in referring to the diverting of personnel to jobs not related to rebuilding equipment or providing help to the podrazdeleniye in laying out and developing the received equipment or conducting preventive repairs on the radar equipment, hold exercises with the men at random. This cannot be tolerated.

The repairmen must be assigned one day a week especially for raising their vocational skills. On this day they must acquire the skills of soldering metals of various combinations; repairing feeders and cables of various types; making various shaped parts widely used in equipment from

dielectrical materials; rewinding transformers and chokes, as well as cleaning metal surfaces. It is essential that each man in the shops be able to skilfully operate the machine equipment assigned him.

In training shop personnel, particular attention must be given to having them study the design and operating rules for radio and electrical measuring equipment used in the process of carrying out repairs of varying periodicity.

Naturally, the assigning of repairmen for interior detail tells negatively on their training level. But life shows that when all the men of the shops go on detail on the same day, it is easier for the chief to organize the training of his subordinates according to the combat training plan. Such a procedure for standing duty makes it possible to use the personnel with greater productivity in carrying out the annual overhauls, when, in addition to testing all the parameters and bringing them up to the norm, mechanical defects and malfunctions are eliminated which could not be eliminated by the crews.

For raising the skill level of the repairmen, more attention must be given to staffing the shops. At present, with the two induction periods (spring and autumn), the future specialists must be selected more carefully. Life has shown that the shops must be staffed with the recruits from the autumn induction. Only in this instance, by the beginning of the intensive period of annual overhauls, it is possible to train good specialists who can effectively service the equipment for two seasons. The men of the May induction can independently perform the annual overhauls only in the second year of service, that is, for only one season.

However, the production activities of the shops are influenced not only by the training level of the repairmen, but also by the quality of planning their work. The absence of a plan or a plan hurriedly compiled reduces the level of leadership and control over production activities in the shops by the technical service officers; it also reduces the labor productivity of each repairman and his personal responsibility for the assigned job. This tells negatively upon the quality of equipment repairs.

Profound analysis of the work of advanced shops shows that a carefully compiled work plan is the guarantee for their success. The plan should determine the activities of each repairman, and the labor expenditures on each planned operation should be calculated. On the next page is a sample form for such a plan.

In working out the designated plan, a typical week should be taken. Many years of experience has convinced us that shop personnel can handle all the tasks assigned to them if the following typical week is used, namely; one day of exercises according to the combat training plan; one or two days of detail and housekeeping jobs; three or four days of work in the shops and one day of rest.

Approved by
Dep. Commander for Mil. Affairs
_____1971

Work Plan for Weapons Repair Shop
of Military Chast for 1971

Total number of calendar days....., incl. days off and holidays ....
Training and equipment servicing days.....
Work days .....
Number of men of shops....., incl. on details and housekeeping jobs (daily average)
For performing jobs.....
Total man-hours per month.....

No	Job	Basis for Repair	Date of work's end	Approx. duration of rep. man-hrs	Executor	Leader	Statement of exec.
1	Repair unit... Radar No	Defect cert. No 3-7 of 5 Jun 71	10 Jul 71	10			
2	Make six inserts for ...	VTI No 26, pp 18-20	23 Jul 71	96			
3	Repairs on shop stand equipment	Repair plan	1, 8, 15, 22 Jul 71	40			
4	Trip to podraz. for participating in repairs of radar No....		16-25 Jul 71				

Chief of Weapons Repair Shop _____
(signature)

In practice, we have become convinced that for each executer, in accord with the shop plan, it is essential to work out a work card which is a guide for the repairman. A sample form and the contents of such a card is as follows (see page 130).

In the given card, the numerater designates the number of hours planned by the shop chief to perform an operation, while the denominater gives the number of hours spent by the executer. The letters designate: B -- sickness, K -- official mission, H -- detail, O -- leave.

WORK CARD

(spec., rank, last name)

1971

№	Job name	Number of work days																												Brief analysis of work done
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	...	30	
1	Painting PPI case		4/3																											
2	Repair shelving		3/3	И										В																
3	Install PS case						7/9														К						О			For doing job, case of case had to be dis-assembled & welded

Chief of Weapons Repair Shop _____ (sig.)

The availability of such cards makes it possible to widely introduce scientific principles into the production operations of the shops, to specify individual assignments for executers on each day, and to organize a competition among them not only for the fulfillment of the plan ahead of time, but also for performing each operation with fewer time expenditures. The numbers designated in the numerater and the denominater make it possible for the shop chief to exercise effective control over the work of each executer, to provide him with help and to teach better skills from his own experience.

However, during a month, shop personnel must also carry out unplanned (additional) assignments. These should be accounted for in a list, the form and sarple content of which is shown at the top of page 131.

The presence of such a list makes it possible not only to account for the fulfillment of the work during the month, but also to soundly establish the production capabilities of the shops to repair weapons, depending upon the skills of the repairmen and the operating conditions of the equipment. Moreover, the information contained in the given list is used by the chief in drawing up scientifically sound labor expenditure norms during the planning of work for the following month.

As is known, the chast technical service is responsible for organizing the production activities of the shops as well as for the quality of the work done by its personnel. The engineers and technicians comprising the service, upon orders from the deputy chast commander, periodically analyze the work of the repairmen, and on the basis of the accumulated statistical data, work out recommendations to improve equipment, to

List of Basic Unplanned Jobs Performed by Shops
in 1971

No	Job	In charge	Man-hours spent	Brief description	Note
1	Repair radar units from podraz.	Dep. cmdr. tech. affrs.	190	1. 2 transformers overhauled 2. Assembly partially repairs 3. EVP replaced	Bad units were discovered during yearly repairs
2	Delivery of parts to podraz. (list & date)	Chast cmdr.	80		

Chief of Weapons Repair Shop _____
(signature)

Report Information on Fulfillments of Work
Plan by Shops of Military Chast in
.....1971

No	Job	Man hours planned	Man-hours spent			Reason for plan non-fulfillment	Note
			planned work	addit. work	Total		
1	Repair radar units	640	450	190	640	Fulfilled	
2	Rebuild A units & system	160	110	50	160	Fulfilled	
3	Travel to rebuild equp. in podraz.	150	35	80	115	Pfc Semenov from ...to...in podraz. K	
4	Repairs on stand equip.	140	30	--	30	Pvt Petrov from ...to...on mission to obtain equip. from mil. chast	

Chief of Weapons Repair Shop _____
(signature)

better repair methods, to reduce the time of the repairs, and to make more rational use of the specialists. In order to meet these tasks, they should have complete data on the production activities of the shops. In this regard, it is advisable that the chief of the service during the first days of the next month compile and present to the technical service report information on the fulfillment of the monthly plan. It is advisable to compile this according to the form shown at the bottom of page 131.

From the report information, one can see that the data given in it make it possible for the officers of the technical service, on an objective and scientific basis, to carry out the tasks related to the production operations of the shops and to raising their effectiveness.

At present, unfortunately there is no uniform opinion on what aspects should be checked in inspecting the production operations of the shops or how to evaluate their work. In considering this, the engineers and technicians of X radar unit evolved a method for evaluating the work of the shops. This method, undoubtedly, will be of interest for the technical service officers.

On the basis of studying and thoroughly analyzing the production operations of the shops, the developers of the method concluded that in evaluating these operations, a complex of questions must be taken into account. These include, in the first place, planning; secondly, the equipping and outfitting of the shops with control and measuring instruments, the availability of an equipped area for inspecting and preparing control and measuring instruments; thirdly, the technical state of the KRAS-1R [check and repair station], KRAS-1M and KRAS-P; fourthly, the observance of safety procedures and fire safety rules; fifthly, the presence and quality of keeping the accounting and reporting documents; sixthly, the training of personnel and the staffing of the shops and KRAS.

In one article, it is not possible to list in detail all the questions which must be taken up in inspecting the work of the shops. We will mention only a few of them. Thus, in checking planning, it is essential to become familiar with the contents of the annual and monthly work plans, the work cards and the individual assignments for the foremen for each day, and the schedule for carrying out repairs on the equipment. Moreover, the inspector should be concerned whether or not the work results of the shops are summed up promptly for each week and month, whether there are orders for the chast analyzing the work quality of the repairmen, how they have participated in carrying out the annual repairs on the radar equipment, and whether the planned measures have been carried out on time.

In inspecting the equipment of the shops, it is recommended that attention be paid to the presence and equipment of machine and carpentry shops, as well as shops to repair radar equipment, communications equipment and other equipment operated in the chast podrazdeleniye. Here it is also essential to make certain that there is an area for painting articles, as well as places for repairing power units, firearms, engineering and

chemical gear, a screened area for tuning receiver equipment, and a room for repairing and charging batteries.

In the work of the shops, stand equipment holds an important place, and for this reason it is essential to make certain that it is in proper working order, and that everything is on hand for testing the repaired units of radar equipment operated in the chast. Particular attention must be paid to equipping the work areas of the foremen, and to how the latest achievements in the scientific organization of labor are used in solving this problem.

At present, as is known, no type of radar equipment can be operated and particularly repaired without the extensive use of control and measuring equipment (KIA). In line with this, in the inspection, it must be ascertained whether the shops are equipped with all the necessary measuring instruments, whether there are proper conditions for their storage, and whether the shops are equipped with work areas for repairing the KIA.

The various types of KRAS play a large role in maintaining the equipment in a state of combat readiness. For this reason, an evaluation of their technical state should be part of the overall evaluation for the work of the shops. In order to objectively evaluate the condition of the KRAS-1R, KRAS-1M and KRAS-P, it is essential to check whether they are equipped with machine tools, instruments, tools, spareparts, tools and accessories, as well as power units.

In the overall evaluation of the shop's work, the determining place is held by their production activities. For this reason, the inspector should carefully examine at what time and with what quality the units, assemblies and lockers were repaired, whether the control and measuring instruments were inspected, whether the radar equipment in the podrazdeleniye had been rebuilt, and what help the repairmen had provided to the podrazdeleniye in making material training facilities and in carrying out the infrequent overhauls.

In checking the skill level of the personnel, it is essential to establish the readiness of each specialist to perform his functional duties during the various periods of the chast combat activities, as well as their ability to handle control and measuring instruments, and to perform the operations of the annual overhauls on radar equipment.

The assigned evaluations for all of the checked questions are entered on an evaluation sheet, the form and contents of which is given below. (See next page).

An overall evaluation of "excellent" is given if an average number of points of at least 4.6 has been obtained, and positive evaluations were obtained for all the checked questions, with "excellent" for points 2, 5 and 9, and not below "good" for points 3, 4 and 10.

Evaluation List for Checking Shops of Military Chast ... 197

No	Name of Evaluated Questions	Grade
1	Planning of shop work.	
2	Equipment.	
3	Outfitting with measuring instruments and equipping of area for testing and repairing control and measuring equipment.	
4	Technical state of KRAS-1R, KRAS-1M and KRAS-P.	
5	Production activities.	
6	Carrying out of safety rules.	
7	Carrying out of fire safety requirements.	
8	Presence and quality of keeping accounting and reporting documents.	
9	Training of personnel.	
10	Staffing of shops and KRAS with personnel.	

Total average of points
Overall grade

A grade of "good" is given if the overall average number of points is not below 3.6, and not below "good" for points 2, 3, 4, 5 and 9, and not lower than "satisfactory" for the remairder.

A grade of "satisfactory" is given in the instance when "satisfactory" evaluations have been obtained for points 1, 2, 3, 4, 5, 9 and 10, and "unsatisfactory" for 2 points.

In speaking about an increase in the effectiveness of shop work, we would like to take up one other question. At present in accord with the existing regulations, for carrying out the complete range of tasks assigned to the shops, two brigades of KRAS are staffed with highly skilled foremen of various specialties. However, it is not possible to create them in accord with the requirements. For this reason, they frequently include specialists who have poor training, and as a result of this, the quality of the annual overhauls is not always high.

Moreover, in carrying out the annual overhauls by two brigades, for a long period of time virtually no specialists remain in the shops, that is, help virtually ceases for the podrazdeleniye in repairing malfunctioning equipment. For precisely this reason, in X chast, the annual overhauls on the radar equipment were performed by one brigade.

Specialists may argue that one brigade cannot perform the given repairs on all the radar equipment in a relatively short period of time. In fact, this is so. However, on radar equipment which is transportable, the annual repairs can and should be done directly in the shops at any season. Practice shows that such an approach makes it possible to raise

the productivity of the shops, and most importantly, due to the rational use of the highly skilled specialists, it is possible to raise the quality of the annual repairs and thereby maintain a high coefficient for the combat readiness of the radar equipment.

In the article, we have taken up only several questions the successful solution to which in X chast has made it possible to raise the effective work of the shops, and to bring their activities closer to solving those problems which they, probably, will have to carry out under a combat situation.

WITHOUT CONCESSIONS TO WEATHER CONDITIONS

By Engr-Lt Col M. Butyrin

The many years of experience of the advanced podrazdeleniye show that under severe winter conditions, the skillful use of modern equipment and the observance of winter operating rules make it possible to achieve dependable work of the equipment, to have a significant savings in fuel and long operating periods between repairs.

A low temperature has a negative effect not only on motor vehicle equipment, but also complicates the work of the drivers. Thus, after long halts, due to the thickening of the oil, and poor vaporization and evaporation of the fuel, it becomes significantly harder to start the motor. It takes many times more effort for the starter to turn over the crankshaft of a cold motor. The voltage in the primary circuit of a 12-volt system of electrical equipment falls to 8-9 volts, and this in turn reduces the high voltage induced in the coil, and weakens the spark on the sparkplug electrodes. The starting of diesels, for example, is made more difficult chiefly due to the lowering of the compressed air temperature. The problem is that the minimal air temperature in the cylinders of a diesel engine at the moment of fuel injection should be 400-500° centigrade. During the winter, with the crankshaft turning at a speed insufficient for starting, the air surrenders a significant portion of its heat to the cold cylinder walls and the combustion chamber, and its temperature at the end of the compression stroke does not provide for the spontaneous combustion of the gas mixture, while the increasing viscosity of the diesel fuel, in addition to all this, makes starting the engine difficult.

Experienced motor vehicle troops know how difficult it is in minimally restricted time to get a motor vehicle ready, if it has stood in an unheated shelter and if no facilities are available to facilitate the starting of the cold engine. In order to find a way out of this situation, inexperienced drivers frequently resort to towing the vehicle, to heating the motor housing or the manifold intake with a torch or by another means for starting the engine which is ineffective and at the same time harmful and dangerous for the motor.

In towing, breaks can occur as a result of the great dynamic stresses in the transmission units. And certainly there is a very simple way to

warm the engine, by filling the cooling system with hot water. Here it is most important to warm the cylinders, since the friction between the pistons and the cylinders is around 70 percent of the total force of friction in the parts of the motor, with 10-12 percent coming from the friction in the crankcase bearings, and 10-15 percent for all the remaining parts.

Before filling with water, the drain valves should be opened. As soon as warm water flows out of them, the valves are closed, the cooling system is filled and the motor is warmed up. Every 5-10 minutes, one-half the capacity of the cooling system must be drained off, in simultaneously adding hot water to it. This operation continues until the head has been warmed up to 30-40° centigrade. Obviously, in using the given method for warming the motor, a sufficient quantity of hot water must be on hand. Thus, with an air temperature of -20° centigrade, hot water must be passed through the cooling system in an amount of up to 2-3 times its capacity, and with a temperature of -30° centigrade, up to the equivalent of 3-4 times its capacity. This method has a substantial drawback, and this is that it does not provide the required warming for the crankshaft bearings and the oil in the engine crankcase.

It has been established that with outside air temperatures of 10-15° centigrade below zero, after 10-15 minutes of warming, the temperature of the cylinder head and the cylinders rises to 25-30° centigrade, the bearings of the crankshaft rise to 5-10° centigrade, and the manifold intake to only 2-4° centigrade above zero. For this reason, the oil in the crankcase is not warmed at all. For reducing the viscosity of the oil and for dependable warming of the engine, individual starting warmers are used and these, incidentally, should always be kept in proper working order and used with a surrounding air temperature of below -10° centigrade.

As is known, gasoline-operated heaters of the V-100 and PZhB-12 type have been installed on the new types of engines in the ZIL and GAZ vehicles. This requires the strict following of fire safety measures. The valve of the gasoline tank for the heater is to be opened only during its operation. After warming the fluid in the cooling system and starting the motor, the heater is switched off, and the valve on the fuel tank is closed. Approximately one minute after the hissing of the flame in the heater boiler has stopped, the handle is put in a neutral position.

However, regardless of what method is used to heat the engine, it is always essential to try to have the crankshaft of a carburetor engine turn over at least 40-60 rpm and for a diesel, at least 100-150 rpm. The higher the turning rate of the crankshaft in starting, the better the contitions are for the atomization and evaporation of the fuel in carburetor engines, as well as the ignition of the fuel in diesels. Drivers should always remember that the starting of an engine without a cooling fluid is categorically prohibited, since in adding cold water to a hot motor, cracks can form in the walls of the head and cylinder block.

In the winter during long halts of the vehicles, the danger arises of freezing the water in the cooling system. In such instances, driver

carelessness can lead to the complete failure of the radiator, the cylinder block and the cylinder head.

It is very important to maintain constant heat conditions for the motor, using insulating covers, and in promptly closing the vents of the radiator. Overcooling reduces the share of heat converted into effective work, while the fuel mix, in coming into contact with the cold cylinder walls, is condensed, it runs off into the engine crankcase and thins the oil. As a result, the power and economy of the engine are reduced, and its wear is accelerated. For example, for the GAZ-51 and GAZ-69 motors, with a temperature drop from 80 to 50° centigrade, engine wear increases by more than 50 percent, proportional fuel consumption by 30 percent, while power is reduced by 10 percent. A temperature fall to 25° centigrade leads to an increase in engine wear by 400 percent.

In the YaMZ-236 engine and in other diesels, even with a water temperature of 60-65° centigrade in the cooling system, fuel consumption increases sharply as does engine wear, and the piston rings are clogged.

With a significant overcooling, the water in the lower part of the radiator freezes, normal water circulation in the system is disturbed, and the engine overheats. In such instances, the vehicle should be stopped, letting the engine idle, closing the radiator vents, in trying to warm the lower portion of the radiator, and when necessary, lossening the tension on the fanbelt. The engine should idle until the water in the radiator has completely thawed.

With a low temperature, the work efficiency of a storage battery also falls significantly. With a reduction of the electrolyte temperature, its capacitance falls by approximately 1-1.5 percent for every degree below 20° centigrade. With a significant discharging of the storage battery and a fall in density, the electrolyte can freeze and damage the battery cells.

Under low temperature conditions, the physical-technical properties of operating materials change sharply. For example, in diesel fuels, the paraffin precipitates out, the elasticity of rubber is worsened, and the friability and danger of damage to plastic parts are increased. Moreover, during the winter season, the operating conditions of the fuel supply system are frequently disturbed as a result of the forming of ice plugs in filters and pipelines, while the pneumatic brake drive may fail with the freezing of condensate in the receivers and lines. For this reason, during the winter it is essential to systematically drain sediment from the fuel tanks, gravitation filters and brake receivers.

At low atmospheric temperatures, there is also a fall in the operating reliability of a hydraulic brake system. Thus, in the BSK brake fluid, for example, castor oil crystals appear, it loses mobility and does not provide for the freezing of the brake shoes. The brake fluid of the GTZh-22 type is frost-proof, but its lubricating qualities are poorer, and with its protracted use, corrosion wear on the metal brake parts develops. In practice,

with particularly low temperatures, ordinarily a 50 percent mixture of GTZh-22 and butyl alcohol is used. It should be remembered that with long stops in order to avoid the freezing of the brake shoes to the drums, the hand brake should not be set in either the vehicle or a semi (secure blocks are placed under the wheels of the tandem trailer truck).

With a fall in temperature, not only the operation of the units and equipment, the servicing and repair of vehicles become more difficult, but also their control. It takes a greater effort on the controls of the equipment, starting and the initial movement of the equipment are more difficult due to the solidification of oil in the power transmission.

With low air temperatures (and in the regions of the Far North), for transmission units one should use the all-season TAP-15V oil (replacement of TAP-10), the engine cooling system should be filled with antifreeze of the 40 grade (freezing at a temperature of -40° centigrade), and the engine should be started only with the use of the starting heater. The vehicle should be moved only after the motor is completely warmed

In order to avoid tire damage and premature wear on transmission parts, the vehicle should be put into motion smoothly, without jerks, and during the first 15-20 minutes, travel in the low gears at a speed of 5-10 kilometers per hour, avoiding road obstacles. Over this time, the oil in the units and equipment of the power transmission is partially warmed up, and the tires regain their elasticity. The drivers must strictly observe this requirement, remembering that the elastic properties of the tires fall sharply at low temperatures. Thus, at a temperature of -45° centigrade, tires virtually lose their elasticity, and are ruined comparatively easy by impact stresses.

Motor vehicles which are equipped with a centralized air pressure control system can cross a snowcover 50-100 centimeters thick. For this, the pressure in the tires should be reduced to 0.5-0.8 kilograms per square centimeter. After crossing the difficult area, the vehicle must be halted and the pressure brought up to the required level, since a long journey with reduced air pressure in the tires is not allowed.

Practice shows that inexperienced drivers who have poorly prepared their vehicle for winter operation, frequently in the cold, with wind and snow, are forced to eliminate the malfunctions which occur on the way. As a rule, these malfunctions appear significantly more frequently during the winter, and lead to more unpleasant circumstances than during the summer.

As is known, for example, increased wear on the bearings of a crankshaft can lead to undesired results in operating the vehicle in any season. But during the winter, this circumstance creates the threat of a breakdown, since after starting a cold engine, the oil in the spaces between the bearings and the pins of the crankshaft flows out, while new oil does not reach the gaps. It has been established that at a temperature of 20-25° centigrade below zero, on modern motors after their starting, it takes two or three

minutes for the oil to pass from the oil pump to the crankshaft bearings. Consequently, until the oil is warmed up and begins to reach the gaps in a sufficient quantity, the bearing will operate virtually without lubrication, and this can lead to their melting.

Special winterizing of the vehicles makes it possible to provide their reliable operation and safe travel. For this reason, the servicing of vehicle and tractor equipment under winter conditions is a matter of exceptional importance. It requires profound knowledge, a high feeling of responsibility and creative initiative not only from the drivers but also from all categories of personnel in the motor vehicle podrazdeleniye.

MONITORING THE FILM RESERVE OF A SARPP

By Engr-Capt N. Kuznetsov

The quantity of film in the CS-05 cassette of the SARPP-12 [probably automatic flight monitoring] system should provide, as is known, a record of the aircraft flight parameters until it has landed.

However it does not always happen that during one flight mission all the reserve of film is used. Thus, after a short flight, the remainder of film in the cassette after the aircraft has landed may equal, let us say, 7 or 9 meters. The aircraft could make a second flight with such a reserve in the event that they could be confident that there would be enough film until the end of the flight. This can be determined by a simple calculation, using the formula:

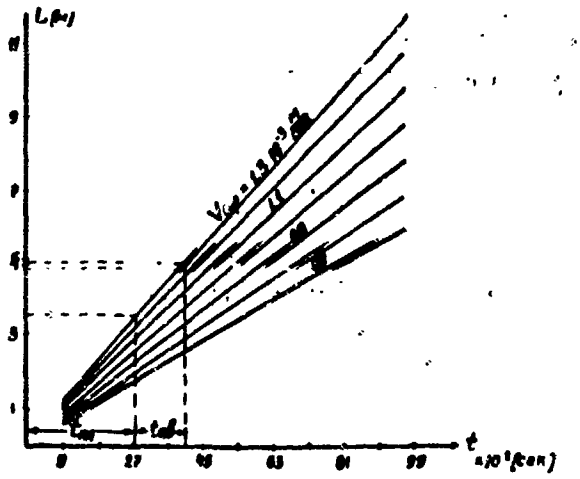
$$L = v_{ad} \cdot t_{pf} \qquad (1)$$

Where L -- quantity of film in meters;
v_{ad} -- the rate of film advance in the cassette equal to 0.7-1.3 mm per second;
t_{pf} -- planned flight time.

Here, any values can be set for t_{pf}, for example, 15, 30, 45, 60, 90 and 120 minutes, recalculating these values (for simplifying the calculation) in seconds.

Time of planned flight (x10² sec	Advance rate (x10⁻³ m/sec)						
	0.7	0.8	0.9	1.0	1.1	1.2	1.3
	Amount of film in meters						
9	0.63	0.72	0.81	0.9	0.99	1.08	2.17
18	1.26	1.44	1.62	1.8	1.98	2.16	2.34
27	1.89	2.16	2.43	2.7	2.97	3.24	3.51
36	2.52	2.88	3.24	3.6	3.96	4.32	4.68
54	3.78	4.32	4.86	5.4	5.94	6.48	7.02
72	5.04	5.76	6.48	7.2	7.92	8.64	9.36

For easier use, the results of the calculation can be given in a table or as a graph (see the drawing) reflecting the dependency $L = f(v_{ad}, t_{pf})$. Thus, in knowing the time of the planned flight t_{pf} (from the plan table) and the rate of the film advance, from the graph, the required quantity of film can be rather quickly determined.



In the event of an emergency situation, the duration of the flight (t_{pf}) is increased by the time determined by the amount of fuel remaining. This time can be calculated using the formula:

$$t_{em} = \frac{G_{frem}}{Q_{tsec}} \qquad (2)$$

where G_{frem} -- remaining fuel before landing in kilograms;

Q_{fsec} -- second fuel consumption in section before landing in kilograms per second.

The numerical values for G_{frem} and Q_{fsec} are taken from the technical descriptions for the aircraft and the pilot instructions. Then, these values are substituted in formula (2), and the value t_{em} is calculated which is constant for a certain type of aircraft. In this regard, the total quantity of film which should provide for the recording of flight parameters with a duration $t_{pf} + t_{em}$, as can be seen from the graph, increases.

In conclusion, we would like to recall one other particular feature which must be taken into account in operating the SARPP. The problem is that the quantity of loaded film is monitored from the film reserve indicator located on the KS 05 cassette. Its readings will be correct only in the instance when the cassette is loaded with film that is 0.09 mm thick. In loading film which is 0.16 mm thick, when the indicator reads 12 meters, the film reserve in the cassette will only be 6.6 meters.

REPAIR OF PLASTIC CABLE SHEATHING

By Engr I. Ilovayskiy

In the course of operating equipment, there are instances when, for one or another reason, cables fail. On the basis of our own experience in repairing them under troop conditions, we feel it advisable to make the following attachment for this purpose.

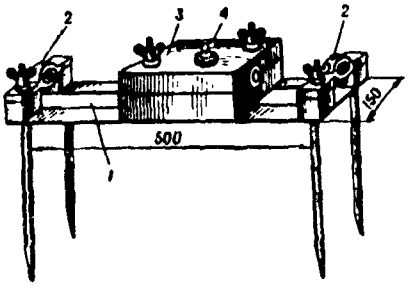


Fig. 1

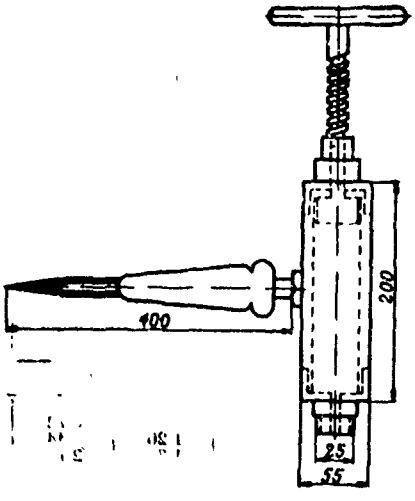


Fig. 2

The assembly jig (Figure 1) is used for the hot repair of polyethylene insulation (PE) for the cores of single-quad cable of the MKP type. The jig has a base flame supported by four unscrewable metal spike-feet 1, on which are located the clamp inserts 2 for bolting and separating the ends of the cable to be connected. On this frame there also is a die 3 for insulating the cores with hot polyethlene. The die consists of an iron base with screws and tops with a hollow nut 4, into which the hand press (Figure 2) is screwed. In the nut are two halv s of aped copper inserts. In the lower half a joint is formed and this joi is covered by the upper half of the insert.

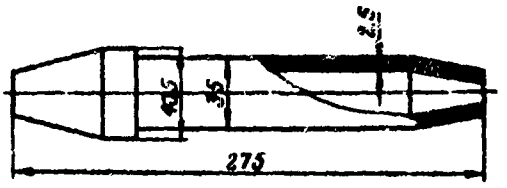


Figure 3.

The cable is repaired in the following sequence. Its ends are separated and joined. In separating the cable ends, first the PE cable sheathing and the insulation of the cores must be cleaned until they are rough, and then degreased with V-70 aviation gasoline or acetone. The joint repaired in this manner is inserted in the die. Then the hand press is filled with granulated polyethylene through the upper flange. The bearing needle is thrust into the ground, and the cylinder is heated with the flame of a soldering iron. The molten polyethylene is ready when it appears in the lower flange.

After this, the hand press with the molten E is screwed into the nut 4 of the die, and by screwing down, the shaped copper inserts are filled. When the die is filled, the hand press is unscrewed. After the cooling of the die, the joint is freed of the pouring channels, and it is ready for the next assembly operation, that is, the replacement of the screen tapes.

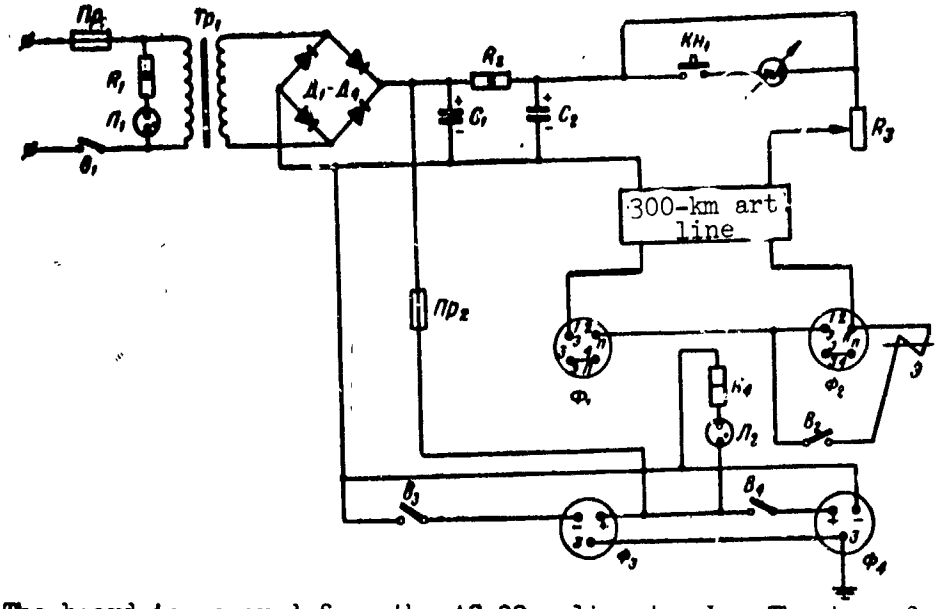
The repair of the protective polyvinyl chloride (PVC) cable sheathing of the MKP grade is done with the aid of a PSKM connecting vice (Figure 3).

In conclusion, we would point out that in addition to the MKP cable, the described method can be used to repair other low voltage power and signal cables with PE insulating and sheathing. For this purpose, the shaped copper inserts of the necessary size are manufactured for the die, or wrappings with fabric tape are used to prevent the extrusion of the molten PE.

A CONTROL BOARD

By Maj V. Matchenko

For testing the proper working order of repaired telegraph equipment as well as for adjusting it. the rationalizer, reenlisted Sr Sgt Kuznetsov, has designed a special control board, the schematic diagram of which is shown in the figure.



The board is powered from the AC 22-volt network. The transformer Tr_1 reduces this voltage to 110 volts, and it is delivered to the rectifier D_1-D_4. From here a direct current is delivered to the ripple filter consisting of condensers C_1-C_2 and resistor R_2. A plus of smoothed current passes through the variable resistance of resistor R_3 to the artificial line. In order to measure the power of the current, a millammeter has been connected to the line with the on button Kn_1. A plus of smoothed current also goes to the second socket of the line plug F_2, and a minus goes to the first socket of the line plug F_1 through the artificial line. For creating the line, the second socket of S_1 is connected to the first socket of the S_2. Thus, conditions are created for operating two sets "on line."

For checking the work of telegraph equipment "by itself," in the panel they have built in the coil of an electromagnet from the STA-2M telegraph equipment, and this is connected to the 1-2 socket of the line plug S_2 via switch V_2. The motor of the tested telegraph equipment is powered from the rectifier D_1 with a direct current delivered to the motor plugs F_3, F_4. The value of the board is that it makes it possible to accurately adjust telegraph equipment after repair, without additional adjustment on operating communications lines. In other words, the presence of such a board provides an opportunity to adjust telegraph equipment under field conditions.

For making the board, a troop shop should have the following: a stepdown transformer from 220 volts to 110 volts (Tr_1); MN-3 neon lights (L_1, L_2); a MLT-1-46 kohm resistor (R_1); a MLT-2-1.2 kohm resistor (R_2); a SP-2-1200 ohm variable resistor (R_3); a D-305 rectifier (D_1-$D4$); KET 40.0 X 450 electrolytic condensers (C_1, C_2); a MLT-1-46 kohm resistor (R_4); a button (Kn_1); a 300-kilometer artificial line; a 100-0-100 millammeter; a STA-2M electromagnet (E); fuses for 0.25-1.20 amps; TV-2-1 tumbler switches (B_1-$B4$; line plugs (F_1-F_2); motor plugs (F_3-F_4). F_1, F_2, F_3 and F_4 are standard from an electrical panel.

The testing and adjustment board for telegraph equipment has been in use for more than two years and has won the approval of the signal troops.

IN DEFENSE OF THE CAPITAL

December marks the 30th anniversary of the beginning of the defeat of the Nazi troops around Moscow. This historic victory was won by the heroic efforts of our army, the people's militia and the partisans. The air defense troops also made a great contribution to the defense of Moscow.

Due to the concern of the communist party and the Soviet government for defending the skies of the capital, powerful forces and means were brought up on time. By the beginning of Nazi air attacks on the capital, the troops of the Moscow air defense zone (the first Air Defense Corps and the Sixth Fighter Aviation Corps) had at their disposal 585 aircraft, 796 medium caliber antiaircraft cannon and 248 small caliber cannon, 336 antiaircraft machineguns, 628 searchlight stations, 124 barrage balloon posts and 702 VNOS [civil defense warning network] posts. The personnel of these troops skilfully used the weapons and equipment assigned to them, and they demonstrated high combat skill, courage and valor. The soldiers and commanders in the air defense of Moscow honorably carried out the mission of the communist party and the Soviet government. Together with chast of the air force and ground troops as well as with the city workers, they saved the capital of our motherland from air bombing and the fire of the ground enemy.

In the battle for Moscow, the air defense destroyed 738 enemy aircraft including 509 by fighter aviation, 180 by antiaircraft artillery, 36 by antiaircraft machineguns, 7 by barrage balloons and 6 by the VNOS chast. To this we should add another 567 German aircraft which were destroyed by the flyers of the Sixth Air Corps in the course of providing cover for our ground forces, and as a result of assault attacks against enemy airfields. As a total, thus, the air defense troops of Moscow during the period of the war destroyed 1305 Nazi aircraft.

In fighting the ground enemy, the soldiers of the Moscow Air Defense zone destroyed 450 tanks, around 5000 motor vehicles, they neutralized more than 250 artillery batteries and decimated and destroyed up to 50,000 German soldiers and officers.

The motherland has had high praise for the heroism and courage shown by the personnel of the air defense troops of the capital. Scores of the

best have been awarded the title of Hero of the Soviet Union, while hundreds of soldiers and commanders have been awarded orders and medals of the USSR.

On the eve of the 30th anniversary of the defeat of the Nazi troops around Moscow, the editors of the journal have requested that the participants in this historic battle share their recollections of the feats of the air defense soldiers in repelling the Nazi air attacks on the capital and in the battles with the ground enemy. Below we publish the stories of the veterans.

The Valor of the Antiaircraft Troops, by Guards Maj Gen Art (Ret) M. Kiknadze

The historic battle for Moscow was the prologue for the victory of our people in the Great Patriotic War. By the walls of the hero city, the myth of the "invincibility" of the Nazi army was debunked. The air defense troops made an inestimable contribution to the victory sustained by the Soviet Army in Moscow. They bravely drove off enemy air attacks, and participated in defeating the hordes of Nazi ground troops.

In this battle, many air defense troops distinguished themselves, including: pilots, antiaircraft gunners, VNOS Troops, searchlight operators, signal troops and balloon troops. At that time, I commanded an antiaircraft chast. For the courage, heroism and high military skill in the men in this chast, it was awarded the name of guards.

Thirty years have passed since that time, but the names of many antiaircraft artillery men have remained in my memory, and their feats have been written in gold in the chronicle of the Great Patriotic War of the Soviet people against Nazi Germany. Here are a few examples.

The first massed attack on Moscow undertaken by the Nazis during the night of 21-22 July 1941 was successfully driven off by the sentries of the skies. Some 22 Nazi vultures were shot down. Only two enemy bombers out of the 220 were able to break through to Moscow, but they did not cause any serious damage to the city.

In this battle, along with the other air defense troops, many antiaircraft artillery troops also distinguished themselves. Among them, were Sr Lt I. Kletz, political commissar V. Kaplinskiy, Lts I. Karasev and N. Tereshchenko, D. Ponomarenko and A. Turukalo, gun commander P. Dmitriyev, range-taker I. Tatarinov, instrument mechanic S. Klimchuk, gun numbers T. Moiseyenko, N. Yenin, S. Ivanov and others.

The USSR People's Commissar of Defense proclaimed gratitude to the entire personnel of the Moscow Air Defense Troops who participated in driving off the massed enemy air attack. Some 83 of the most outstanding soldiers were awarded orders and medals of the Soviet Union. In presenting

the decorations, M. I. Kalinin said: "Defend Moscow like the apple of your eye. The defense of our capital in this war is of enormous international and political significance. Beat the enemy so that all the air defense troops follow your example."

In the photo: M. I. Kalinin presents the Order of the Red Star to Maj M. Kiknadze for participating in the air defense of Moscow.

1941 photo

The defenders of the Moscow skies courageously and skilfully carried out this order. Just the battery which was commanded by Lt Kas'yanov in one of the battles destroyed two He-111 bombers advancing on Moscow. Several days later, J-88 bombers attacked the battery. The antiaircraft gunners opened fire. The enemy dropped scores of incendiary bombs on them. But our troops did not flinch. They continued to fire intensely at the enemy aircraft and forced them to turn back.

Or another example. The Nazis threw in many forces to knock out a large railway junction and a bridge on the approaches to the capital. The attacks came one after another, but the Nazis were not successful. The artillery troops of the battery which was commanded by Lt Korniyevskiy fought carefully and coolly, and each time thwarted the enemy's intentions. Then the Nazis decided to destroy the antiaircraft battery. Fourteen enemy aircraft, flying in a circle, in turn dove at the firing position, they bombed it, and covered it with a shower of lead from the machine-guns. But the men of the battery not only survived but were also able to break up the group of enemy aircraft with accurate firing, preventing them from reaching the defended objective. After this attack, the Nazis were six military aircraft short.

During the October and November days which were terrible for Moscow, upon the order of the Supreme Commander-in-Chief, 228 antiaircraft guns were dismantled from the firing positions and sent to the north and west of the capital for fighting the German tanks and submachine gunners.

The antitank troops on the Volokolamsk-Istra axis were led by Col D. Garkusha and senior political commissar I. Strelkov. On the Rogachev axis, by Maj S. Spiridonov and senior battalion commissar P. Telegin. On the Mozhaysk axis, the 871st Antitank Regiment was operating, and this had been formed from the 193rd Antiaircraft Artillery Regiment where senior political commissar F. Vershinin was the commissar.

The antiaircraft antitank regiments became a mighty force against the Nazi invaders. They destroyed scores of tanks and aircraft as well as much enemy personnel. These chast provided great help to our ground troops, in checking the drive of the Nazi tanks which were endeavoring to break through to Moscow.

Distinguishing themselves in repelling the attacks of Nazi tanks were: battery commander and military technician second rank I. Zhavoronkov, junior political commissar D. Sazhnev, Lts A. Ryazantsev and T. Volnyanskiy and political commissar B. Cheslavskiy, the commissar of the antitank regiment senior political commissar F. Vershinin, the gun commanders V. Gromyshev, G. Shadunts, Komarov and Podtyazhkin, the commander of the machinegun crew Kogan, the gunner Bespalov and others.

During the winter of 1942, the 871st Antitank Regiment where senior political commissar F. Vershinin was the commissar was fighting against the Nazi tanks in the cavalry corps of Maj Gen L. Dovator. Once (this was in the Ruza area of the front), the German command threw scores of tanks against the advancing cavalry chast. The cannons of the antitank regiment were quickly brought up against the Nazi tanks, upon the order of the corps commander. The political commissar personally directed the repelling of the tank attack. At a critical moment when the Nazi tanks had begun to outflank the artillery troops and the threat of encirclement arose, he began to assign targets to the guns. Sniper crews with cannons were brought up to the flanks. Vershinin himself directed the firing. Nine tanks engulfed in flames remained on the battlefield. The enemy was forced to bring the surviving tanks back to the initial line.

Gen Dovator who was observing the combat actions of the antitank group was delighted with the heroism of the artillery troops. When the battle was over, he hurried up to Vershinin, he congratulated the soldiers on successfully driving off the tank attack, he took his cap off, and put it on Vershinin's head, saying: "Thank you, you are a real guardsman, commissar."

In the region of the village of Kiovo, to the north of the capital, German tanks were rapidly advancing along the Dmitrov Highway. The battery of military Tech 2d Rank I. Zhavoronkov, blocked their way to Moscow. In this unequal battle, the gun of Sgt G. Shadunts, working together with the crew of the deputy political commissar V. Gromyshev, destroyed nine Nazi tanks. The gun commander V. Gromyshev died the death of the brave.

When Guderian's tanks were dashing toward Tula, the platoon commander Lt G. Volnyanskiy put the guns on direct firing. In this battle, the antiaircraft gunners destroyed 14 Nazi tanks. After the death of the gunner Bespalov on one of the guns, Volnyanskiy, having taken his place, personally destroyed four Nazi tanks. The lieutenant died the death of the brave in the unequal battle.

We, the participants of the last war, find it a pleasure and joy to realize that the present generation of air defense personnel holds sacred

and is adding to the glorious military traditions of their grandfathers, father and elder brothers, in each day enriching the heritage of the past with high military skills and new feats in military service, and in vigilantly defending the skies of the beloved motherland.

Strikes From the Air, by Hero of the Soviet Union, Guards Col (Res) V. Matakov.

During the period of defending Moscow, I happened to serve in one of the fighter aviation regiments. The military pilots fought courageously and skilfully against the Nazis in the skies of the capital. But they made equally successful assault attacks against the enemy ground forces. In my article I would like to tell of this.

During one November day in 1941, our group consisting of seven MiG-3 aircraft spotted six Nazi Me-110 fighter bombers in the air on their way to Moscow. Without delay we hurried to attack. The attack was so unexpected and daring, that the Nazi vultures were not even able to close their "safety" circle in the hope of covering one another with the fire of their own cannons. The battle was short, and four enemy aircraft were shot down, while only two were able to take cover in the clouds.

Some 67 times, along with my combat comrades in the squadron, I made a sortie to attack enemy troops. But I will always remember my first flight. We were to attack a column of Nazis which had been kept under observation for two days. The Nazis had become accustomed to our standing patrols and obviously felt that we considered them our own troops. In the column were up to 120 motorcycles, 30 vehicles, 2 tank trucks, and 3 personnel carriers. And now, along with Nikolay Tyurin and Nikolay Gusev, we were flying to the target. The altitude was 1150 meters. From a half-roll, we dove and released the missile, and then fired on the enemy from the cannon. After four passes, the column had virtually ceased to exist. Scores of trucks, motorcycles and gasoline-filled tank trucks were in flames on the road. In a low-level flight, we returned safely to our own airfield.

One other combat mission also comes to mind. It was close to evening. After a difficult battle, the mechanics had fueled the aircraft, added oil, while the gun crews were replenishing the ammunition and suspending the bombs. But that was for tomorrow. All of a sudden there was a new order to take off. All of us dashed to our aircraft. One or two minutes later my wing was in the air, and after it, the second and third. The target was a Nazi staff which had been discovered in the forest. Below forest roads and population points drifted slowly by. Up ahead were clouds. We used them to cross the front line and then gained altitude.

We inspected the skies carefully. There were no Nazi fighters to be seen. A meeting with them was extremely undesirable. To fight with bombs on board was not particularly pleasant. Soon, off to the left of our group

caps from the explosion of German antiaircraft shells appeared. This meant that we had been discovered. I glanced around. Gusev was flying off to the side. and the wing of Tyurin and Odinokov were behind. These were reliable and battle-tested comrades.

The enemy antiaircraft gunners intensified the fire. Black caps of explosions appeared to the side, behind and ahead. I looked down through a break in the clouds and noticed that the forest roads ran in front of a long two-story house. The roof had been camouflaged the same color as the terrain. But the walls from red brick stood out sharply against the forest. Next to the house, vehicles had been scattered in groups. There was no doubt, this was the staff.

Guards Capt V. Matakov. Summer of 1942.

Drawing by B. Vorob'yev

In maneuvering among the bursts, we sent our aircraft into a dive, and one after another released the bombs. Soon thereafter, where the brick house had been we saw clumps of thick black smoke. There was no sense in repeating the run as the target had been destroyed. Moreover, it was rapidly growing dark, and we headed back to our airfield. On the next day, the partisans informed us that Soviet fighters had destroyed the staff of a Nazi soyedineniye close to Ostashkov.

Day after day we attacked the enemy roads around Moscow. And during these battles we lost comrades in arms. Petr Galkin, Ivan Dubov, Nikolay Tyurin, Vasiliy Shishkin and Vladimir Chenskiy did not return from combat assault missions.

In the autumn of 1941, it was unusually cold and snowy. By the end of October, snow had fallen and the frosts reached 10-12°. In flying on reconnaissance, we observed almost the same picture of German troops fighting their way to Moscow.

But each of us was confident that somewhere down below, in the forests of the Moscow region, a fist was being prepared, and the striking power of it would not only halt the Nazi troops, but also drive them back far from Moscow. And then this long-awaited hour arrived. On 6 December, we were alerted at 0400 hours and informed; "Our troops around Moscow have begun a counteroffensive..." It is hard to get across those feelings which we experienced upon hearing this news. It was an insurmountable desire to immediately take to the air and have a look at what was being done "there."

... Dawn. Our group of six aircraft was in the air. The cloudiness was 10 points, the altitude of the lower cloud edge was 750-800 meters and visibility was 12-15 kilometers. We crossed the frontline between Dmitrov and Yakhroma, and observed several fires in the enemy rear. On the fields the snow around the villages and along the roads was covered with dark spots of craters from shells, bombs and mortar shells.

Against the white background of the ground, we could see our tanks, infantry, ski troops, cavalrymen and firing artillery, and everyone was moving west.

The road from Dmitrov to Rogachev from the village of Savelovo was as black as pitch. Along it the Nazis were rushing to pull back and to save their equipment and personnel. We were the first to attack not an advancing but rather a retreating enemy. The group leader, regiment commander Capt Vladimir Ivanov chose the target, a concentration of enemy near a turn in the road. We reformed into a right vector. One after another we went into the attack. The Germans put up strong antiaircraft fire. The bursts of the antiaircraft artillery shells covered the panorama of the ground beneath us with black clouds, and the paths of the Erlikon guns reached toward our aircraft from various positions, but the attack had already started. Four runs were made. Eleven vehicles on the road burst into flames at various places. The movement of the Nazis had stopped. Day by day our attacks against the enemy personnel and equipment grew.

The winter days were short. But we were able to make two or three sorties per day. The front line moved further and further west. During the first days of January we landed at the airfield in Klin. Now, not from the air but from the ground we could see the large quantity of destroyed and abandoned German equipment, and the pile of corpses of enemy soldiers and officers which the Nazis had not been able to gather up and bury.

From Klin we flew to Staritsa. Here the same picture presented itself. Thus the Nazi offensive against Moscow ended infamously. The pilots of our chast made a worthy contribution to this victory.

The Mastery and Courage of the VNOS Troops, by Col (Res) L. Ogolikhin

During the years of the last war, along with the other branches of arms, the podrazdeleniye of the civil defense warning network (VNOS) in which I happened to be serving at that time took an active part in defending the capital of our motherland, Moscow.

The system for the reconnaissance and detection of an air enemy was organized in such a manner as to bring all the air defenses and means to a state of combat readiness ahead of time, as well as to promptly alert the population and the objectives of a possible danger. The VNOS chast around Moscow formed two circular warning zones and a solid observation

field. The first zone was 200-250 kilometers away from the city. The inner line of the solid observation field was 120-125 kilometers from the center of the capital. RUS-1 surveillance radars were deployed on the Rzhev-Vyaz'ma line.

The combat experience of the VNOS observation posts during the first period of the war had shown that with a correctly chosen position, the observers with binoculars could visually detect aircraft up to 8-10 kilometers away. At night and with poor visibility, the enemy was sought by listening to the characteristic engine noise.

With the approach of the front line to the capital, the network of observation posts was reduced, and this had a negative effect upon the quality of the warning and guidance for the fighters. Particularly difficult conditions for the VNOS posts developed in October-December, when the depth of the battle formations of the VNOS troops on the western axis was reduced to 50-60 kilometers, and on the northwestern, to 35-40 kilometers. At this time, the personnel of the posts, along with conducting reconnaissance for the air enemy, at the same time observed the operations of the enemy ground forces. Frequently the soldiers of the observation posts had to participate directly in battle with the enemy.

Capt L. Ogolikhin in 1945
Drawing by B. Vorob'yev

Once, in the region of a post where Red Army man Matyushenko was the chief, three Nazi tanks appeared. The crew assumed the defensive, and prepared to repel the enemy tanks. The first Nazi tank, when it was 10-15 meters away from the post, was stopped with a grenade. Grenades and bottles with burning liquid were also thrown at the other tanks. They turned back and hurried to take cover. Thus, a handful of soldiers successfully repelled an attack by enemy armored vehicles.

On one day in October, 30 Nazi submachine gunners approached the VNOS post where Red Army man Orlov was the chief. The peronnel of the post, having assumed a convenient position, opened fire against the Nazis. A fierce exchange of firing ensued. The forces were unequal, but this time a reconnaissance platoon came to the aid of the crew, and the enemy, unable to withstand the accurate fire of the Soviet soldiers, took to flight.

In December 1941, the observation post in the region in the village of Akulovo was surrounded by Nazis. The chief of the post, Sr Sgt Kn. Nariman'yan, and his subordinates Jr Sgt A. Skakun and Red Army men, G. Garin,

N. Pichkurov, M. Kashirin, V. Churbanov, A. Aliyev and N. Kurakin assumed an all-round defense. With accurate firing from rifles and automatics, using grenades, they destroyed the beseiging enemy, but the forces were unequal. The handful of Soviet soldiers fought until the last drop of blood. They all perished, but did not retreat one step.

The personnel of the VNOS posts frequently had to conduct observation and report on the air enemy while under heavy machinegun fire and bombing attacks from the Nazi invaders. I recall, for example, the following case. At the post headed by Red Army man Voytenkov, solitary aircraft attacked six times. In dropping bombs from a dive, the Nazi pilots wanted to destroy the combat crew of the post, but our soldiers each time met the enemy with accurate fire from their personal weapons. Here I should point out that during the period of the battles, the VNOS posts of the Moscow air defense zone shot down six enemy aircraft with smallarms and machinegun fire.

With our troops assuming the offensive, the VNOS chast were given the mission of reestablishing the posts on the liberated territory. Their deployment frequently occurred under enemy fire. Under these condtions, the personnel of the VNOS service acted courageously, and at times showed real heroism. Here is one example. The commander of the operations squad, Sgt Bulayev, in working under artillery and mortar fire, with his subordinates, reestablished 60 kilometers of permanent communications lines, and eliminated more than 100 failures on other lines. In liberating the Gzhatsk region, this squad, under roadless conditions, and in encountering mined areas, in three days rebuilt 80 kilometers of telephone lines. Many soldiers fulfilled the orders of the command just as intrepidly.

In April 1942, the bombing attacks on Moscow halted. Only solitary aircraft at high altitudes appeared over the capital. Regardless of this, the air defense system of Moscow was continuously improved and equipped with new combat equipment.

In speaking about the heroism of the VNOS troops, we must not forget the radar troops. During the period of July 1941 through January 1944, the radar stations of the Moscow air defense zone detected and tracked more than 49,300 targets. Moreover, the visual VNOS service recorded 20,300 sorties. Thus, both the VNOS and the radar troops, in the course of defending the capital, successfully carried out missions assigned to them. At any time of the day, during fog and blizzards, they vigilantly stood duty, detecting the enemy aircraft on time, and warning the troops and the population of the city about them. Many soldiers and individual VNOS chast were awarded high governmental decorations for heroism and courage shown in the battles against the Nazi invaders.

A CENTRAL PROBLEM OF MILITARY MORALS

By Col K. Payusov,
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The revolution in military affairs, having caused fundamental changes in the organization of the troops, has not abolished but rather enriched the general pattern of the dependency of the military power of a state, the course and outcome of military actions upon the morale of the army. Having substantiated that man is, as before, the decisive force in war, the revolution has more acutely posed the question of the morale and combat qualities of the Soviet soldiers, and has posed the task of improving their morale and psychological training.

The interests of raising the might of the Soviet Armed Forces urgently demand that the commander indoctrinators master not only military pedagogics and psychology, but also Marxist-Leninist ethics. The book of A. S. Milovidov entitled Kommunisticheskaya Moral' i Voinskiy Dolg (Communist Morality and Military Duty) which has been published by the Military Publishing House in 1971 can provide skilled help for officers in gaining further ethical knowledge and in using this knowledge to indoctrinate Soviet soldiers.

The book analyzes a central problem of our military morals, that is, the problem of Soviet military duty. Its theoretical elaboration is organically linked to the practical formation of high morale, political and military qualities in the Soviet military personnel, and with indoctrinating them in a spirit of unshakable loyalty to their people, to internationalism, to the cause of communism, and a readiness to give up all their forces, and if need be, their life for defending the motherland and for achieving victory over the enemy.

In analyzing the objective and subjective aspects of Soviet military duty, the author leads the reader to the conclusion that "Soviet military duty is the high and honorable obligation of military personnel deriving from the objective necessities of defending the socialist fatherland, and strengthened by the constitutional law requirements and internal moral drives." The subjective aspect of duty which is based upon a conviction of the historical rightness of one's struggle for the cause of communism is a powerful source of moral force in the Soviet soldier.

It is interesting to read the section of the book about the historicalness of Soviet military duty, and about the change of its content as a result of broadening the social base of the Soviet Army. From convincing examples, the author shows that from the very first days of our army, military duty has been completely suoordinate to the liberation goals of the workers, and that the soldiers have always carried out requirements recorded in the first Knizhka Krasnoarmeytsa (Booklet of the Red Army Man) approved by V. I. Lenin in 1918. Here it states "To serve it (the Red Army) is to serve the working people. To betray it is to betray the people. Its enemies are your enemies. Its victory is your victory, and its defeat is your death. It is you yourself. Serve it as you serve yourself." Under present conditions, military duty, in line with the conversion of the Soviet state from a body of the dictatorship of the proletariat to a state of all the people, has assumed a clearly expressed character of belonging to all the people. With the formation of the world socialist system, its international content has also deepened.

The chapter about the moral and legal basis of military duty goes into the specific character of its requirements, and shows the unity and difference of the moral and legal aspects, the dialectics of the development of the moral-legal basis, and the relationship of the moral authority of military duty and the self-discipline of a soldier.

The chapter on the structure of the moral awareness of duty is of great cognitive and practical significance for army indoctrinators. This chapter analyzes the role, in military activities, of ideals, feelings, will and the habits of a person. The author establishes an unbroken integrity and an interrelated unity in all aspects of the awareness of military duty, the enormous role of each of its elements in the conduct of the soldier, showing scientifically here that the ideological element is the main and determining component in the awareness of military duty. Precisely communist ideological loyalty acts as the highest regulator in the activities of a Soviet soldier.

The section of the chapter dealing with the relationship of the objective requirements of duty and the personal desires of a soldier is not only of theoretical interest but also of great practical interest for the commander indoctrinators. The author's illustration of a number of precedents with their analysis and evaluation helps to more thoroughly understand the complexity and contradictoriness in the relationship of the objectively proper and desired, and to be aware of the necessity to develop an awareness of duty which provides a growing conformity between the desired and socially necessary, and a subordinationg of the soldier's personal motives of conduct to the social ones.

A well argued criticism of the idealistic and metaphysical views about the "spiritual" components of military duty in the imperialist armies ends the chapter of the book. This clearly shows the advantages of the moral foundations of Soviet military duty over the "spiritual forces" and "soldierly duty" in the exploiter armies.

Also of interest are the chapters in the book dealing with the relationship of military technical knowledge and military morals and the significance of the aesthetic in military activities. Here, in essence, for the first time broad circles of military indoctrinators will become familiar with a theoretical analysis of the role of social knowledge in developing an awareness of duty, a moral value of the beauty of military service, and the contradictions which arise here.

The reader should pay closest attention to the chapter dealing with the unity of goals and means for forming communist morals and an awareness of duty. In relying on the Marxist-Leninist theses that a noble goal is not achieved by evil means, and in turn, a goal which requires inacceptable means cannot be noble and just, the author establishes the necessity of developing the awareness of Soviet military duty by humane means helping to raise the worth of military personnel. At the same time, the incorrectness is shown of such indoctrination "methods" as impoliteness, shouting, the "dressing down" of subordinates, and so forth. The approach to new soldiers should be particularly careful and tactful. The author draws the reader's attention to the caution contained in one of the orders of M. V. Frunze: "... Abrupt dealings, and unexpected reprimand and coarse shouting will be incomprehensible to a young Red Army man, it will confuse him and kill an interest in military affairs."

Proceeding from the complicated structure of an awareness of duty, the author establishes the necessity of using a flexible interrelationship of all means for forming this awareness, and cautions against canonizing individual means which is fraught with negative consequences.

As an example of the unity of noble goals of combat and the humane means of indoctrinating Soviet soldiers, the book examines the moral incentives for their activities. In this regard, such effective means of moral incentives are analyzed as the personal example of the commander in carrying out military duty and the effect of public opinion in the military collective, as well as the possibilities of their ideological and psychological effect on the behavior of a soldier.

The author shows that a person can become a real indoctrinator and commander only when he will not only instruct the masses by his example, but also learn from the masters and rely on their experience and support. No matter how knowledgeable and diligent a commander might be, he will not carry out his obligations and cannot solve the problems confronting him, if he does not rely on the party and Komsomol organizations and on the force of the army community. In being concerned with the ideological maturity of the collective and in directing the expression of its public opinion in the proper channel, the commander creates a strong moral force for developing men with a sense of high duty. The effectiveness of this force is described by the words cited by the author and said by the serviceman A. Drynov: "It seems to me that in our regiment it is totally impossible to serve poorly. That is the sort of situation here. You yourself are not even aware how a feeling of duty and the excitement of competition seizes you, and you are filled with a desire to make your contribution to the common cause..."

The concluding chapter of the book examines the moral criterion of loyalty to military duty. "At the basis of communist morals," taught V. I. Lenin, "lies the struggle for strengthening and protecting communism." In concretizing this criterion of communist morality in terms of military activity, the author concludes that combat readiness and the ability to carry out combat missions are the main criterion in evaluating the level of awareness of Soviet military duty. Here, he urges the indoctrinators to consider not only the external expressions of military activity and its result, the but also the motives for the deeds of the soldier, for objective actions are not compartmentalized from subjective intentions. Consideration of the motives of behavior is a necessary condition for a differentiated approach to one's subordinates.

The other aspects analyzed by the author of the moral criterion of Soviet military duty are also of interest on the practical level of military indoctrination. Without correctly understanding the moral criterion of military activities and its aspects, it is impossible to correctly qualify the behavior of subordinates, to optimally choose indoctrination effects, and determine measures of commendation and rebuke.

As a whole, the book is well written. It combines profound theoretical knowledge with a vividness of exposition, convincing examples, aphoristic brevity and condensed exposition of a number of complex theoretical concepts. This is an undoubted merit for the author and the editor.

However, anyone who is acquainted with a similar work by the author which has been published previously by the Military Political Academy imeni V. I. Lenin involuntarily will conclude that the last book, while gaining in one regard, has lost in another. For example, it gains in the fact that the theoretical aspect of the problem has been expounded in a more accessible manner for a broad group of military readers, and theses and terms requiring rather high philosophical training have been eliminated. At the same time, it is inferior to the previously published monograph in terms of the diversity of clear and convincing examples relating to one or another feature of the moral makeup of military personnel, as well as in the analysis and moral judgment of these examples. To some degree this reduces the instructiveness of the book and the interest in reading it. We feel that the publishing house has not been quite right in limiting the size of the book to more than one-half of the former. In considering the importance and timeliness of the moral problem generally and military morals, in particular, as well as the not so frequent appearance of well written works on the questions of military morals, it would have been possible not to put the author in such narrow confines.

The stated comment in no way prevents one from concluding that the commanders and political workers have gained a good theoretical aid on one of the most urgent questions of military indoctrination. Its publishing meets one of the fundamental requirements in the modern development of the Armed Forces, that is, to raise the scientific level of the theory and

practice of developing high moral qualities in Soviet military personnel in light of the decisions of the 24th CPSU Congress. Undoubtedly, the book will help the commander indoctrinators in mastering the theory of morality and the scientific methodology of moral indoctrination.

Aircraft controller Capt Aleksandr Samoylov attentively watches all the convolutions of the "dogfight." He helps the commander to quickly judge the air situation, and to take the required decision.

Photo by K. Subbotko

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